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ABSTRACT

At the time of this report, the Western States Small Schools Project (WSSSP) had completed one full year of operation (1962-63) in the schools of Arizona, Colorado, New Mexico, Nevada, and Utah. Major WSSSP objectives are identified as: developing ungraded programs (K-12); developing appropriate uses of programmed materials; providing teacher preparation for small schools and rural living; and developing approaches to school board members' orientation to the education problems of rural America. Using a case study approach to the evaluation of the total project, data collected at the beginning of the project and again at its completion are to be analyzed in terms of observable changes resulting from project activities in each participating school. Among the activities cited in this Colorado report are: advisory meetings; regional workshops; a superintendent's conference; a scheduling conference; an amplified telephone project; and an annual summer workshop. Also, this report contains the names of administrators, teachers, and a short description of WSSSP proposals. Reports are presented for project activities which have progressed far enough to have some significant findings re: the utilization of programmed type materials in English; a general music class; independent study in science; individualized instruction in mathematics and language; and the telephone method of teaching in a non-graded school. (JC)

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ANNUAL REPORT
JULY 1, 1962 · JUNE 30, 1963

COLORADO WESTERN STATES SMALL SCHOOLS PROJECT

COLO. STATE DEPT. OF
EDUCATION · DENVER
BYRON W. HANSFORD
COMMISSIONER

U S DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
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THE CENTER FOR CULTURAL STUDIES
Adams State College of Colorado
Alamosa

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COLORADO WESTERN STATES
SMALL
SCHOOLS PROJECT

ANNUAL REPORT
July 1, 1962 - June 30, 1963

Prepared by:
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Colorado Western States Small Schools Project
Division of Elementary & Secondary Education

COLORADO STATE DEPARTMENT OF EDUCATION

Office of Instructional Services
Leo P. Black, Assistant Commissioner

Denver, Colorado 80203
September 1963

THE CENTER FOR CULTURAL STUDIES
Adams State College of Colorado
Alamosa

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ANNUAL REPORT

COLORADO WESTERN STATES SMALL SCHOOLS PROJECT

Introduction

The Western States Small Schools Project has completed one full year of operation in the schools of Arizona, Colorado, New Mexico, Nevada, and Utah. This has meant an additional year of investigation of new or modified approaches to the problems of small schools in Colorado. These activities are a continuation of those started by the Rocky Mountain Area Project for Small High Schools in 1957.

Extension Activities

One of the objectives of the Colorado WSSSP proposal is to carry on those activities found to be successful by the RMAP. This included:

1. Multiple Class Teaching
2. Limited use of Small Group Techniques
3. Appropriate uses of all/or portions of the Harvey White Physics and John Baxter Chemistry Film Series
4. Cooperative Youth Seminar Activities

This objective has been met as evidenced by the following:

A. Multiple Class Teaching

1. At least eight formal proposals were submitted to the Project office in which more than one class was being taught simultaneously by one teacher.
2. In visiting both Project and non-Project schools teachers who had not submitted proposals were observed teaching multiple classes. They no longer considered this to be a new or novel approach.

3. This technique is one that has been recognized[1] and recommended[2] by authorities in small school design and organization. 1

B. Small Group Techniques

1. Nine teacher proposals included various grouping techniques as part of their Project design
2. The use of small groups finds its way into most of the projects which are attempting to individualize instruction

C. Film Courses

1. Three schools used all or part of the Harvey White Physics Films
2. Four schools used all or part of the John Baxter Chemistry Series

D. Cooperative Youth Seminars

Four seminar groups were in operation during the 1962-63 school term involving 15 schools. (For additional information on the seminar activities, refer to page 20.)

Expansion Activities

The second major objective of the Colorado WSSSP is to explore:

1. Ungraded programs or continuous progress in small schools (k-12). This has also taken the form of individualizing instruction.
2. Appropriate uses of programed materials in company with the other four states.

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[1] Iwamoto, David, Small High Schools, 1960-61, Research Division, National Education Association, Washington, D.C., 1963 Pg. 52, 97.

[2] Nimnicht, Glendon P., and Partridge, Arthur R., Designs for Small High Schools, Colorado State College, Greeley, 1962.

3. Ways and means of improving the preparation of teachers for small schools and rural living in cooperation with Adams State College, Colorado State College, and Western State College.
4. Approaches to the orientation of school board members to the educational problems of rural America.

The following progress has been made in these expansion activities:

A. Ungraded Programs

Eighteen projects were in operation attempting to breakdown the traditional grade level approach. These ranged from a total staff effort to ungrade a program K-6, to a single teacher attempting to individualize an English class by providing enough variety of experiences to meet the needs of each student.

B. Programed Materials

Twelve teachers experimented with the use of programed materials either published or teacher made. Activity in this area was handicapped by the lack of available programs. This situation should be improved for the 1963-64 school year.

C. Teacher Education

1. This phase of the Project will formally begin during the 1963-64 school term.
2. The necessary groundwork has been accomplished with the colleges and a plan of operation has been drawn up and approved by both the districts and the participating institutions.

D. School Board Institutes

1. This phase of the Project is also planned to begin during the coming school term.
2. Tentative plans are to begin by combining these sessions with the regional workshops for WSSSP teachers and administrators.

Significant Activities

A. Advisory Meetings - Meetings of the advisory committee were held on October 10, February 6, and June 7. The committee composed of (1) all Project administrators, (2) WSSSP Coordinator, (3) representatives of Adams State College, Colorado State College and Western State College, (4) executive director of the State School Board Association, and (5) State Department elementary and secondary section chiefs. This committee is asked to review and react to all major Project activities.

B. Regional Workshops - Four regional workshops were held during the school year. These were scheduled for Friday evening and Saturday so that major interruptions to the school program would be avoided. Workshops were held at:

Eagle on November 16-17
Ouray on November 30-December 1
Woodlin on January 11-12
San Luis on January 18-19

The program for the workshops included:

1. Teacher demonstrations by:

Ann Brgoch, LaVeta - Junior High Mathematics
Geraldine Gettman, Woodlin - Elementary Reading
Bernice Hayes, LaVeta - Junior High Language Arts

Junior Karas, Woodlin - High School Music

Bill Mitchem, Rangely - Student Interest Day

Robert Wallendorff, Rangely - Student Interest Day

2. A presentation of the Brigham Young University, Continuous Progress Plan by Dr. John Crnkovic

3. A presentation by Dr. Ellis Graham, Colorado State Department of Education on grading and reporting (Eagle Workshop).

4. Presentations were made via amplified telephone by:

Dr. Frank Cyr
Professor of Rural Education
Teachers College, Columbia Univ.
New York City, New York

Dr. A. Harry Passow, Director
Horace Mann-Lincoln Institute
Teachers College, Columbia Univ.
New York City, New York

Dr. Phil Lange
Professor of Psychology
Teachers College, Columbia Univ.
New York City, New York

Dr. Lester Nelson
Associate Program Director
Ford Foundation
New York City, New York

C. Interested Superintendents Conference - This one day conference was held on April 9 for the purpose of outlining the goals and activities of WSSSP for those districts showing an interest in becoming formal members of the Project. Administrators and board members from 12 districts attended. As a result of this conference and related activities, the following schools will be joining the Project for 1963-64:

Campo
DeBeque
Haxtun
Kim
Nederland
Saguache

D. Five State Scheduling Conference - A two day conference to explore the possibilities of additional flexibility in the small school schedule was held in Nevada, April 19-20. This was the first attempt of the WSSSP to cooperate in bringing together selected Project personnel from the local districts of each of the five states to attack a common problem. Dr. Dwight Allen of Stanford University was brought in as a resource person.

As a result of this conference the WSSSP was requested to identify one of its schools to work with Stanford University in setting up a schedule for a small school by automatic data processing.

E. Amplified Telephone Pilot Project - Five schools--Collbran, Meeker, Rangely, Silverton, and Telluride--were tied together with Western State College, Gunnison, by long distance amplified telephone to investigate the feasibility of bringing outstanding resource people to the classrooms of these small high schools by this medium. This pilot effort consisted of three presentations in the area of social studies. Mountain States Bell Telephone provided the equipment, technical assistance and assumed the payments for the toll charges for this experiment. (For additional information see page 131 for the complete documentation.)

F. Annual Summer Workshop - The annual workshop was held on the campus of the new Rangely Junior College, June 5-9. One hundred twenty-five Project teachers and administrators attended representing 24 schools. Some indications of progress resulting from the workshop are as follows:

1. The number of participants exceeded the 1962 workshop by approximately 45 people.
2. For the first time, workshop participants were required to submit a brief written statement of their proposed Project activities to receive an invitation to attend the workshop.

3. Increased participation and commitment on the part of the consultants from Adams State College, Colorado State College, and Western State College as well as the State Department of Education.

4. Project teacher demonstrations were of a high quality and showed evidence of much effort in preparation.

Presentations were made by:

Ann Brgoch - LaVeta
Geraldine Gettman - Woodlin
Bernice Hayes - LaVeta
Charles Jaquette - Meeker
Junior Karas - Woodlin
Crystal Marietta - Meeker

5. Consultants included:

Dr. Clifford Bebell
Director, Elem. & Sec. Educ.
Colo. State Dept. of Educ.

**Mr. Michael Beilis
Staff Representative, Educ.
Tele-Communications, AT & T

Mr. Ralph G. Bohrson
Coordinator, WSSSP
Colo. State Dept. of Educ.

Dr. K.O. Broady, Director
Center for Continuous Educ.
University of Nebraska

Dr. Shelton Chastain
Professor of Education
Adams State College

Dr. John Crknovic
Assistant Director
Lab School, Brigham
Young Univ.

Dr. Stuart Dean
U.S. Office of Education

Mr. Sam Eccher
Teacher of English
Westminster

**Mr. Clifton Fadiman
Lecturer, Author & Prof. of
Humanities
Univ. of Calif. at Los Angeles

Dr. Edward Fry
Professor of Education
Loyola Univ. of Los Angeles

Dr. Sam Gates
Dean, Graduate School
Colorado State College

Dr. Kenneth Hansen
Dean, School of Education
Western State College

Dr. Herbert Hughes
Professor of Education
Colorado State College

Dr. Dale Lorimer
Professor of Education
Adams State College

**Dr. Arthur Lumsdaine
Professor of Education
University of Calif. at Los Angeles

Dr. Jack Sparks
Professor of Education
Colorado State College

**Mr. Paul Touchette
Professor of Education
Harvard Graduate School

** Presented via amplified telephone

G. Schools Leaving Project - Two schools have discontinued their activities with the Project during the year. These schools are Platte Canyon at Bailey and Arriba High School. This loss of interest has resulted primarily from the change in personnel at the local level.

H. Publications - There were no publications completed during this year. Work was started on:

1. WSSSP Brochure
2. Youth Seminar Publication
3. 16mm Sound Film Documentation

Evaluation Procedures

The WSSSP is using a "case study" approach to the evaluation of the total project. An attempt has been made to collect data which would give a complete picture of each school's program at the beginning of the Project. Data will again be collected at the end of the Project and compared with the baseline information to determine what changes, if any, have resulted from Project activities. The case study design was developed by a team of consultants including:

Dr. Charles Fawsett, Director
Student Teaching Programs
Arizona State College

Dr. Pat Lynch
Professor of Educational Research
University of New Mexico

Dr. Sam Gates
Dean, Graduate School
Colorado State College

Mr. Jack Davis
Assoc. Professor of Education
University of Nevada

Dr. Walter Borg
Director of Research
Utah State College

Apparent Impact of Project

The Project, because of its focus on the instructional problems of small schools, appears to be of interest to many foreign countries, most of which have similar situations. Representatives from Basutoland, India, Island of Mauritius, Malaya, New Zealand, Poland, and Sweden have visited the office and in the Project schools during the year. It is interesting to note that the visitor from Malaya had heard about the Project from a college professor in Japan who had visited in Denver at a previous date. Inquiries concerning Project activities and requests to visit Project schools are continually being received from all parts of the United States.

An additional indication of impact is the number of requests received for presentations concerning the Project activities. Presentations have been made at the:

National Convention of the National Education Association
American Association of School Administrators - Drive-In Conference
National Association of State Boards of Education
Professional organizations at the local level
In-service and pre-school workshops

Personnel

Two changes in personnel at the state level have occurred, one immediately prior to July 1, 1962 and the second on July 1, 1963. Paul Nachtigal joined the Project staff as Assistant Director on June 15, 1962. Mr. Frank Anderson, Director of the Project since January of 1962, left to assume the position of Executive Assistant to the Commissioner on July 1, 1963.

A roster of Project personnel including the names of administrators, teachers, and a short description of each Project proposal begins on page 11. You will note that some schools do not have any proposal listed.

This indicates only that proposals were not received in time to be included when the roster was printed.

Reporting Procedures

Those teachers and/or administrators progressing far enough with their project to have some significant findings are asked to document their activities so that their results might be shared by others interested in trying these techniques. The remainder of this report, beginning on page 23, consists of selected documentations of Project activities for the 1962-63 school year. Additional documentations for last year will be reproduced and added to this report as they become available.

WESTERN STATES SMALL SCHOOLS PROJECT - ADMINISTRATIVE PERSONNEL

1962-63

Arickaree High School	Carol Simons, Superintendent
Arriba High School	John Smith, Superintendent
Aspen High School	Earl Kelly, Superintendent
Battle Mountain High School, Redcliff	Art Watson, Superintendent Larry G. Mortenson, Principal
Branson High School	Thomas Briggs, Superintendent
Briggsdale High School	E. G. Achenbach, Superintendent
Centennial High School, San Luis	Silver Jaramillo, Superintendent
Crested Butte High School	Dr. John Stuart, Superintendent Anton Christoff, Principal
Gilpin County High School, Central City	Ralph Calabrese, Superintendent
Ignacio United Schools	Jack F. Deeds, Superintendent
Kiowa High School	August Bajorek, Superintendent
LaVeta Public Schools	Edwin P. Hildebrand, Superintendent
Lone Star High School, Otis	Philip Pyles, Superintendent
McClave High School	K. Malcolm Floyd, Superintendent
Meeker Public Schools	Robert King, Superintendent
Ouray High School	Harold Kropuenske, Superintendent
Plateau Valley Schools, Collbran	C. L. Kinney, Superintendent
Rangely Public Schools	Bernard F. Yaeger, Superintendent Robert T. Wallendorff, Principal
Ridgway High School	Victor Lind, Superintendent
Sangre de Cristo Schools, Hooper	Harry Morris, Superintendent Walter Stahlecker, Principal (Mosca)
Silverton High School	H. M. McMillan, Superintendent
Simla High School	William H. Hatcher, Superintendent
Telluride Public Schools	Paul Frick, Superintendent
West Grand County High School, Kremmling	Bernard A. Kelly, Superintendent
Woodlin School, Woodrow	Harold Decker, Superintendent

ALPHABETICAL LISTING OF PROJECT TEACHERS

A

Albin, Bertha	Telluride High, Telluride
Arguello, Richard	Branson High, Branson

B

Beattie, Thomas A.	Telluride High, Telluride
Brgoch, Ann	LaVeta Public, LaVeta

D

Davis, Moylene	Telluride Elem., Telluride
Dunn, LaVerle	Telluride Elem., Telluride
Dunn, Roger	Telluride J. H., Telluride
Duteil, Harry	Telluride High, Telluride

F

Fedel, Joan	Ridgway High, Ridgway
Fitzgerald, Loryne L.	Battle Mountain, Redcliff
Ford, James M.	LaVeta Public, LaVeta
Frick, Paul	Telluride Elem., Telluride

G

Gettman, Geraldine	Woodlin, Woodrow
Gibbs, Doris L.	Ridgway High, Ridgway
Graham, Robert	Lone Star, Otis
Grise, Sylvia	Sangre de Cristo, Hooper

H

Hawkins, Ernest	Telluride High, Telluride
Hayes, M. Bernice	LaVeta Public, LaVeta
Haynes, Everly	Telluride High, Telluride
Head, Louise	West Grand, Kremmling
Higgs, Norman E.	Silverton High, Silverton
Howell, Eleanor	Ridgway High, Ridgway

I

Irwin, Frank W.	Meeker Elem., Meeker
Irwin, Justine	Meeker Elem., Meeker

J

Jaquette, Charles	Meeker H.S., Meeker

K

Karas, Junior R.	Woodlin, Woodrow
Kelly, Bernard	West Grand High, Kremmling

M

Marietta, Crystal	Meeker J. H., Meeker
Martin, Ruby	Sangre de Cristo, Mosca
Masch, Fay	Branson High, Branson
Munger, Deane L.	Ridgway High, Ridgway

O

Oba, Betty	Sangra de Cristo, Hooper
Oba, Herbert	" " " "

P

Parr, Mrs. Dean	Meeker Elem., Meeker
Paulson, Walt	Sangre de Cristo, Mosca
Pearce, Fred	West Grand, Kremmling
Powers, J. F.	Ignacio United, Ignacio

R

Reed, Daniel B.	Arickaree, Anton
Ross, John	Silverton High, Silverton

S

Scott, Prudence	Telluride High, Telluride
Smith, William L.	Crested Butte High, Crested Butte
Stahl, Inez	Sangre de Cristo, Hooper
Staude, Walter L.	Woodlin, Woodrow
Steen, Marshall T.	Meeker H.S., Meeker
Stout, Mary	Telluride High, Telluride

T

Trautman, Joan	Lone Star, Otis
Trezise, Robert C., Jr.	Battle Mountain, Redcliff

W

Wallendorff, Grant W.	Battle Mountain, Redcliff
Wallendorff, Robert T.	Rangely High, Rangely
Warren, Jerry	McClave High, McClave
Whyte, Eunice K.	Simla High, Simla
Wilson, Joy M.	Ridgway High, Ridgway

TEACHERS LISTED BY SCHOOLS & PROJECT ACTIVITY

Arickaree High School, Anton

Reed, Daniel - A PLAN FOR INDIVIDUALIZING AND EVALUATING INSTRUCTION IN INSTRUMENTAL MUSIC THROUGH THE USE OF THE TAPE RECORDER - Each student will advance at his own rate through five levels of instrumental instruction. The student will be released from class periodically to make a tape recording of certain exercises. The instructor evaluates the tape at his convenience and prepares a written evaluation for the student. Student instructors are being used to assist the teacher.

Arriba High School, Arriba

Aspen High School, Aspen

Battle Mountain High School, Redcliff

Fitzgerald, Loryne L. - THE TEACHING OF BEGINNING SHORTHAND IN THE SAME CLASS PERIOD WITH A CLASS IN SECRETARIAL OFFICE PRACTICE - A multiple class designed to provide further opportunities for those students interested in the area of stenographic training.

Trezise, Robert C. - A PLAN TO OFFER AN ADVANCED ENGLISH CURRICULUM TO COLLEGE-BOUND SENIORS - A multiple class which will provide advanced instruction for the college bound in the field of English. The class will be concerned with writing more detailed research papers as well as with extensive use of paper bound books.

Wallendorff, Grant W. - A PLAN TO TEACH A MULTIPLE CLASS IN HIGH SCHOOL MATHEMATICS AND SCIENCE - A multiple class of chemistry and Algebra II. The Algebra II class is using "Temac" programed materials.

Branson High School, Branson

Arguello, Richard - A PLAN FOR INDIVIDUALIZING INSTRUCTION IN SPANISH THROUGH THE USE OF A LANGUAGE LABORATORY AND PROGRAMED MATERIALS - The class contains both non-Spanish speaking and Spanish speaking students. Significant in this project is the use of teacher-made programed materials to teach vocabulary.

Masch, Fay - A PLAN TO PROMOTE GREATER LEARNING AND INTEREST IN SPELLING, READING AND GRAMMAR THROUGH THE USE OF PROGRAMED AND TEACHER-MADE MATERIALS - The individualization of instruction in the field of language arts, grades five-twelve, through the use of programed materials. English 2600, Universal Electronics materials, SRA Spelling and Reading Labs are being used. Personal conferences are designed to assist students with their special problems.

Briggsdale High School, Briggsdale

Centennial High School, San Luis

Crested Butte High School, Crested Butte

Smith, William L. - FILM DOCUMENTATION TO ASSIST IN ACHIEVING THE OBJECTIVES OF A PHYSICAL EDUCATION PROGRAM - The documentation of a physical education program for small schools by use of 16 mm film. The film is to be used to disseminate information to other teachers interested in this program.

Gilpin County High School, Central City

Ignacio United Schools, Ignacio

Powers, J. F. - A GUIDE FOR TEACHERS DEALING WITH ETHNIC GROUPS, ESPECIALLY AMERICAN INDIANS - This activity is designed to give the teacher a more complete appreciation of, and insight into, the cross-cultural problem in Anglo-oriented schools. A manuscript will be produced which will include suggested techniques for guidance and motivation of multilingual pupils.

Kiowa High School, Kiowa

LaVeta Public Schools, LaVeta

Brgoch, Ann - A PLAN FOR INDIVIDUALIZING INSTRUCTION IN FRESHMAN MATHEMATICS THROUGH THE USE OF PROGRAMED MATERIALS, GROUP TECHNIQUES, & MULTIPLE CLASS TEACHING - An individualized math program in which the higher ability group is using the SRA "Modern Mathematics" programed materials while the remainder of the class is taking general mathematics. Each of the students is proceeding at his own rate of speed.

Ford, James M. - MULTIPLE CLASS TEACHING IN BUSINESS EDUCATION USING SMALL GROUP TECHNIQUES - A multiple class in bookkeeping and shorthand. The bookkeeping class is divided into student teams which work together on assignments. The shorthand class makes extensive use of the record player with earphones for practicing dictation.

Hayes, M. Bernice - A PLAN FOR INDIVIDUALIZING INSTRUCTION IN THE 7th AND 8th GRADE LANGUAGE ARTS PROGRAM THROUGH THE USE OF PROGRAMED MATERIALS, TEACHER PREPARED MATERIALS, AND SMALL GROUP TECHNIQUES - The child is placed at his own level and allowed to proceed at his own rate. SRA Labs in Reading, Spelling, Reading for Understanding, and Organizing and Reporting are being used as well as The Scholastic Unit, "Animals"; English 2600 and literature recordings. Each child has a folder in a filing cabinet in which he keeps his materials as well as a diary of work completed.

Lone Star High School, Otis

Graham, Robert - A PLAN FOR INDIVIDUALIZING INSTRUCTION IN SECONDARY SCHOOL ENGLISH - A "team teaching" approach to English in grades seven and eight and nine through twelve. An attempt is made to individualize instruction within each of the groups by using conventional materials. Both Graham and Trautman are in the class at the same time so that the strengths of each teacher can be utilized to a greater extent.

Trautman, Joan - see Graham, Robert

McClave High School, McClave

Warren, Jerry F. - A PLAN FOR IMPROVEMENT OF INSTRUCTION IN PHYSICS THROUGH THE USE OF THE HARVEY WHITE FILM COURSE - The film series is used to provide a more comprehensive and advanced course in physics than would otherwise be possible.

Meeker Public Schools, Meeker

Irwin, Frank W. - TEAM TEACHING OF ARITHMETIC IN THE INTERMEDIATE GRADES - Intermediate level students are grouped in arithmetic according to needs, abilities and interests on the basis of pre-tests. The Strathmore Individualized Arithmetic Program is being used as a basic material. Seminar meetings of fifteen or fewer pupils are conducted frequently. Individual help is given to students by placing them in temporary "need" groups and by personal attention by the teacher.

Irwin, Justine (Mrs.) - see Irwin, Frank

Jaquette, Charles - A PLAN FOR INDIVIDUALIZING POETRY IN GRADES NINE AND TEN THROUGH THE USE OF A TEACHER-PREPARED SEQUENTIAL PROGRAM - This activity is designed to offer a wider range of sensory experiences in poetry in Grades nine-ten than is usually possible. Basic to the poetry unit is a sequence of experiences provided by tapes, filmstrips, anthologies, disc recordings and films. Also sequenced are teacher interviews and lectures. The sequence is designed to "branch" students into various levels of interest and difficulty.

Marietta, Crystal - INDIVIDUALIZING ENGLISH PRACTICE THROUGH THE USE OF PROGRAMED MATERIALS - Children will be grouped according to their needs in the language arts. Groups are to be flexible as the needs of individuals change. Materials used other than conventional textbooks and workbooks are EBF grammar filmstrips, prepared duplicated practices and teacher-prepared programed materials.

Parr, Dean (Mrs.) - see Irwin, Frank

Steen, Marshall T. - A PLAN FOR PROVIDING PHYSICS INSTRUCTION TO SMALL GROUPS OF SECONDARY STUDENTS WHERE THE ASSIGNING OF A TEACHER IS NOT CONSIDERED ECONOMICALLY FEASIBLE - The Harvey White Physics Films are used to offer physics to two students. A rear projection projector with earphones is used to show the films. Physics students use the accompanying guides produced by RMAP. Programed materials are used to supplement the film course.

Steen, Marshall T. - A PLAN FOR AN ADVANCED SCIENCE COURSE USING INDIVIDUAL RESEARCH METHODS - A twelfth grade science course for the academically talented. Each student sets up a tentative schedule for the year's work spending approximately nine weeks each in such areas as meteorology, insect taxonomy, geology, and ecology. The student progresses through the course independently by working in the laboratory, in the library, or in the field.

Ouray Public Schools, Ouray

Plateau Valley, Collbran

Rangely Public Schools, Rangely

Wallendorff, Robert T. - STUDENT INTEREST DAY - An organization and scheduling plan which places the responsibility for independent study upon the student. Provides opportunity for remedial instruction and enables the student to devote more time to his areas of interest. Presently the program provides one half day per week for the pursuit of individual study.

Ridgway Public Schools, Ridgway

Fedel, Joan (Mrs.) - INDIVIDUALIZED INSTRUCTION IN BUSINESS EDUCATION THROUGH THE USE OF SELECTED MATERIALS - This multiple class is divided into three groups for the purpose of further individualizing instruction. Group I has no previous business course experience. Group II has had one year of typing experience. Group III is ready for advanced experiences in statistical typing, machine transcription and the use of other office machines. Individual students use limited office equipment on a rotating basis.

Gibbs, Doris (Mrs.) - A PLAN FOR INDIVIDUALIZING INSTRUCTION IN 7TH GRADE MATHEMATICS THROUGH THE USE OF MULTI-LEVEL TEXTBOOKS - Pre-tests were given, former teachers were contacted, and students' records were examined to establish mathematics aptitude. Modern Math materials were chosen for the average and above average students. Traditional materials are being used by the slower students. Each student in each group is proceeding at his own pace.

Howell, Eleanor (Mrs.) - A PLAN FOR TEACHING A MULTIPLE CLASS IN SPEECH AND DRAMA - Through sequenced sensory experiences provided by means of tapes, disc recordings and lectures, students are guided through study units in thinking, reading, listening, writing, acting, and speaking. Teacher-student conferences assist in coaching student's efforts and evaluating progress.

Munger, Deane - A PLAN FOR INDIVIDUALIZING INSTRUCTION IN BIOLOGY THROUGH STUDENT INITIATED EXPERIMENTS - Students are guided to the investigation of several basic research efforts in the life sciences. Each student must display some degree of proficiency in observing, interpreting, drawing valid conclusions and evaluating his own and others investigations. Several unique concept testing devices have been developed by the teacher for the purpose of determining growth and need.

Wilson, Joy M. (Mrs.) - A PLAN FOR INDIVIDUALIZING INSTRUCTION IN SECONDARY SCHOOL AMERICAN HISTORY AND GOVERNMENT THROUGH THE USE OF TEACHER PREPARED MATERIALS - Mrs. Wilson uses the E.B.F. social studies films, CBS Report Materials, tapes, maps, and selected readings. Each class member helps to plan his individual program in whichever course he is taking.

Sangre de Cristo Schools, Mosca

Grise, Sylvia (Mrs.) - see Oba, Herbert

Martin, Ruby (Mrs.) - see Oba, Herbert

Oba, Betty (Mrs.) - see Oba, Herbert

Oba, Herbert - AN EXPERIMENT IN GROUPING STUDENTS IN THE TEACHING OF GRADES FIVE-EIGHT OF A NON-GRADED BASIS FOR READING - This four teacher effort involves four reading classes organized as follows: (a) students reading at the grade 6.0 level or above, (b) students at level 5.0-5.9, (c) readers at level 4.0-4.9, and (d) those below the reading level of 4th grade. Being used are SRA Reading Labs, Scholastic Literature Units, Readers Digest Skill Builders, as well as standard texts. Several diagnostic tests were administered before grouping was done. Evaluation plans are extensive.

Paulson, Walter - A PLAN FOR DEVELOPING AND INCREASING THE INDUSTRIAL SKILLS OF STUDENTS THROUGH THE SMALL SCHOOL SHOP PROGRAM - Students in the shop program have the opportunity to plan and have first hand experiences in plumbing, heating, painting, electrical work, roofing, framing, concrete work and insulating. Evaluation will be done by an advisory group composed of the teacher, school officials, and local contractors on the basis of materials available and quality of work accomplished.

Stahl, Inez (Mrs.) - TEACHING MUSIC APPRECIATION IN THE FIRST GRADE, USING TECHNOLOGICAL DEVICES - This project encompasses a variety of music appreciation activities in the first grade. Through the use of records, taped instructions and sequenced graphic materials, the teaching of music is correlated with other major teaching units.

THE EXTENSIVE USE OF AUDIO-VISUAL MATERIALS IN A SELF-CONTAINED FIRST GRADE CLASSROOM - Through the use of tapes and correlated and carefully sequenced graphics, Mrs. Stahl is attempting to teach the major concepts in Health, Social Studies, Reading and Phonics.

Silverton High School, Silverton

Higgs, Norman E. - A PLAN FOR INDIVIDUALIZING INSTRUCTION IN A SENIOR GOVERNMENT CLASS THROUGH THE USE OF THE PROBLEM SOLVING UNIT - By using the problem solving method in a social studies program, Mr. Higgs can assist each student to proceed at his own rate. Basic to this procedure is the use of small group seminars, problem discussions and debates. Each student, however, may be investigating data in order to gain an understanding of a problem that is of special interest to him.

Ross, John - USING PROGRAMED MATERIALS FOR THE INDIVIDUALIZATION OF HIGH SCHOOL MATHEMATICS - Materials being used are "Groups and Fields", McGraw Hill; "Algebra I & II", TMI Grolier; "Modern Math", Science Research Associates; "General Math", Education Engineering; TEMAC Basic Mathematics, Encyclopaedia Britannica Films.

Simla High School, Simla

Whyte, Eunice K. (Mrs.) - A PLAN FOR INDIVIDUALIZING INSTRUCTION IN SECONDARY SCHOOL PLANE GEOMETRY THROUGH THE USE OF PROGRAMED MATERIALS - Ten students use a programed course in geometry (TEMAC) while seventeen are pursuing the course through the regular textbook. The performance of each group will be evaluated and compared at the end of the year.

Telluride Public Schools, Telluride

Albin, Bertha - see Frick, Paul

Beattie, Thomas A. - A GUIDANCE PROGRAM FOR THE SMALL SCHOOL UTILIZING TEACHER-COUNSELORS - An investigation of a suitable small guidance program. Included in this effort are (a) the use of teachers as counselors, (b) appropriate vocational guidance instruction, and (c) an adequate testing program.

Davis, Moylene - see Frick, Paul

Dunn, Laverle (Mrs.) - see Frick, Paul

Dunn, Rodger - A PLAN FOR UNGRADING THE 7TH AND 8TH GRADE ENGLISH PROGRAM - Through the use of programed materials and other printed and non-book materials, the areas of grammar, composition, reading, spelling and speech are non-graded. Evaluation of this year's experiences will assist in determining how best to extend the present non-graded elementary program into the junior high school.

Duteil, Harry - THE USE OF PROGRAMED MATERIALS IN ALGEBRA I & II - This project grows out of the need to broaden mathematics offerings in the school and to overcome certain scheduling difficulties. TEMAC Algebra materials are being used. Students proceed at their individual rates of speed.

Frick, Paul - EVALUATION AND IMPROVEMENT OF THE TELLURIDE NON-GRADED ELEMENTARY SCHOOL - This project begins its second year with a continuation of the nongraded program. Added this year are the use of programed materials and a growing guidance and testing program. Areas of concentrated activity are improving progress reports and improving the reading and arithmetic instruction. An attempt is being made to eliminate all level barriers. This is a total staff effort, kindergarten through grade six.

Hawkins, Ernest - see Frick, Paul

Haynes, Everly - see Frick, Paul

Scott, Prudence - see Frick, Paul

Stout, Mary - see Frick, Paul

West Grand County Schools, Kremmling

Head, Louise - see Kelly, Bernard

Kelly, Bernard - UNGRADING THE HIGH SCHOOL ENGLISH PROGRAM - Through the pre-evaluation of students by means of standardized reading and grammar tests, previous grade averages and anedoctal analyses, initial groups of all high school English students were formed. Student grouping is flexible and is adjusted according to the results of frequent evaluation. Five ability-achievement levels replace four former grade levels.

Pearce, Fred - see Kelly, Bernard

Woodlin School, Woodrow

Gettman, Geraldine (Mrs.) - THE USE OF EDUCATIONAL TECHNOLOGY IN THE SECOND GRADE - Through the use of the tape recorder, this teacher may be freed to teach two reading groups at the same time. Pre-taped reading lessons are used by pupils for purposes of introducing each new lesson or story. By making effective use of the tape recorder, this teacher is able to spend more time in individual and small group instruction.

Karas, J.F. - A PLAN FOR A HIGH SCHOOL MUSIC CLASS DESIGNED TO BROADEN MUSIC HORIZONS WITHIN A LIMITED TIME SCHEDULE - This curriculum offering is designed to make available to all high school pupils experiences in music appreciation and understanding. The overhead projector, tapes, and discs are extensively used. Teacher made sequential materials are being produced.

Staude, Walter - A PLAN FOR THE USE OF PROGRAMED MATERIALS IN A MULTIPLE CLASS IN MATHEMATICS - By using TEMAC programed materials in Algebra I and II, this teacher is able to teach both courses simultaneously. Each student is able to proceed as quickly or as deliberately as he wishes. Some comparison between the experimental Algebra I class and a similar traditional class will be attempted by means of end-of-year standardized testing.

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YOUTH SEMINAR PROGRAMS

Calhan-Monument Seminar

Coordinators: Jim Emmons, Robert Lynch
Participating Schools: Calhan Public School, Calhan
Lewis-Palmer School, Monument

"THE INDIVIDUAL AND THE ORGANIZATION" - The seminar meetings center around such writings as George Orwell's "1984", Vance Packard's "The Hidden Persuaders", St. Matthews "The Sermon on the Mount", etc. The students read these selected materials and the discussion is patterned after the Socratic method of asking searching questions without giving any direct answers.

Kiowa Seminar

Coordinator: August Bajorek
Participating School: Kiowa High School, Kiowa

"INTERNATIONAL UNDERSTANDING" - This seminar, for students and adults, centers each meeting around a presentation and discussion of a different foreign country. The presentations are made by a foreign student attending the University of Denver. Areas covered in the discussion are: (a) natural resources, (b) transportation, (c) economics, (d) politics, (e) education, (f) agriculture, (g) religion, and (h) history of the country being presented.

San Luis Valley Youth Seminar

Coordinator: Walter Stahlecker
Participating Schools:

- Sangre de Cristo H.S., Mosca
- Centennial H.S., San Luis
- Creede H.S., Creede
- Manassa H.S., Manassa
- Saguache H.S., Saguache

The seminar meetings which are held on the Adams State College campus are concerned with delving more deeply into a subject matter area such as social studies, music, history, etc. than is done in the high school classroom. The objectives of the seminar are: (a) to introduce student to a college campus and its professors, (b) give the students a perspective of the various fields of endeavor to aid them in their future planning, and (c) to give the students from the participating schools an opportunity to meet on an academic basis rather than only in athletic competition.

Washington - Yuma County Seminar

Coordinator: Carol Simons
Participating Schools:

- Arickaree H.S., Anton
- Idalia H.S., Idalia
- Liberty-Joes H.S., Joes
- Lone Star H.S., Otis
- Otis H.S., Otis
- Woodlin H.S., Woodrow

The purpose of this seminar is to broaden the experiences of the academically able and ambitious students. The seminar has no central theme. Some of the programs have been a "TeleLecture" from the United Nations, attendance at the Drama Workshop, Colorado State College, Greeley; concerts in Denver and lectures given on philosophy of science and creative arts.

Simla Seminar

Coordinator: Corine Johnson
Participating School: Simla High School, Simla

"HOW CHANGING VALUES AFFECTS INDIVIDUALS IN SOCIETY" - The seminar program for the year centered around the values which are important to individuals in America and to American society.

COLORADO WESTERN STATES SMALL SCHOOLS PROJECT

DOCUMENTATION

INDIVIDUALIZED INSTRUCTION
JUNIOR HIGH LANGUAGE ARTS
Bernice Hayes
LaVeta High School

COLO. STATE DEPT. OF
EDUCATION · DENVER
BYRON W. HANSFORD
COMMISSIONER

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INTRODUCTION

During the past few years the great emphasis has been for teachers to teach in such a way that each child could get the most from all subject areas.

Many methods of reaching every child have been tried or suggested. Homogeneous grouping and heterogeneous grouping with smaller groups within the classes are the most prominent.

The Meeker Junior High School teachers have tried both homogeneous and heterogeneous grouping. They found that each of the methods had some merit, but neither allowed every child to work at his own level.

Since nineteen-sixty the following statements have appeared in the philosophy of the "Meeker Junior High School Curriculum Guide:"

> We believe that pupils differ in their ability to run, jump, hear, or see, and they also differ in their ability to memorize, to learn to read, or to solve problems; and that because of these differences, all pupils cannot benefit from the same classroom experiences. Learning experiences must be provided to satisfy different kinds of needs if each pupil is to be given his opportunity to achieve to the maximum of his ability.

If the above statements are true, then each child should be provided with a program of study which would fit his range of ability in all subject areas.

With this idea in mind the author conducted a study using programed materials to individualize the teaching of skills and concepts of grammar in the eighth grade English program.

Programed materials lend themselves better to individual instruction and learning than any other materials which the author has used. A student can use basic or more advanced programs. Because these programs are designed to teach small units of information at a time, a child can advance rapidly or slowly depending on his ability to grasp new concepts and develop new skills.

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LIMITATION OF THE STUDY

The study which was conducted from September 1962 to June 1963 had many limitations. The first and probably the most frustrating was the lack of available programed materials for all levels. Even though English 2600 and English 3200, published by Harcourt and Brace, were used for the more advanced students, materials for all other levels had to be designed and programed by the teacher. The process of writing programed material was time-consuming and proper evaluation and revision of the materials could not be made.

Much class time was used in helping the students develop study habits and responsible attitudes so they could progress on their own.

Although all eighth graders participated in this project, the scores for only forty were available and used in the accompanying charts. Achievement scores made in the sixth and seventh grades were used for comparison purposes only. The scores received by these students near the end of the eighth grade were primarily the results of the individualized program.

The plan had been to compare eighth grade scores with the seventh grade scores from the "Clapp-Young English Tests." Because the validity of some of the scores was questionable, this comparison was not made.

PURPOSE OF THE STUDY

The classes in the Meeker Junior High School at Meeker, Colorado, range in number from fourteen to twenty. The children are placed heterogeneously into groups.

The need for individualizing the English program was indicated by the fact that some pupils felt so frustrated in their attempts to learn the concepts and skills in the eighth grade which would enable them to do a good job in high school English. Others had achieved so well that eighth grade English held little or no challenge for them. Consequently, they did as little as possible, and some had cultivated such sloppy and lazy study habits that they were working far below their abilities.

A course of study had been set up which placed certain skills and concepts in definite grade levels.

However, the trend in the Meeker Junior High School has been toward helping every individual as much as possible. Also, the administration has encouraged and given help to teachers who wished to experiment, especially in the individualizing of instruction.

The specific objectives for the author's project were:

1. To encourage each child to set goals for himself and to achieve those goals.
2. To give each child adequate practice in the areas in which he needs help.
3. To enable each child to achieve at his own pace.
4. To give a child individual help and attention when he needs it.
5. To build better study habits.
6. To encourage each child in his achievement by using programed materials which provide immediate knowledge of results.
7. To collect, write, and file the necessary materials to achieve the first six objectives.

PROCEDURE

Scores from the "Iowa Tests of Basic Skills" and "Clapp-Young English Tests" were used to determine the areas in which a child needed instruction. Some pretests were given to pinpoint specific weaknesses within an area. For instance, a few children could identify subjects and predicates, but they could not readily recognize run-on sentences. The greatest advantage in using pretests was that teacher and child could analyze the test together. Such analysis is not acceptable procedure with standardized tests.

Whenever a child was able to use English 2600, those pretests were used; otherwise the tests were usually teacher-made.

After a child finished a unit of work, he took a test to evaluate his achievement. These tests were graded together by the teacher and pupil. The pupil could ask questions or make comments; the teacher could give explanations where necessary. Also, grading papers together made the pupil feel that the teacher had a genuine interest in his achievement, problems, and general well-being.

If the child lacked understanding of skill, he had access to practice sheets selected for reinforcement or intensive practice.

All materials were selected and assigned to meet the specific needs of specific children. English 2600 was most helpful with its pretest, its programed instruction, and its final tests. Whenever a child did not do well on the first test, he selected practice sheets from the file to do. When he was sure he had learned the concepts, he took the second test.

For the high achiever, portions of English 3200 were used after English 2600 had been completed. Again, the pretest, the programed material, the final test, or tests with reinforcing practices, were used.

Teacher-made materials were used most extensively for the slow achievers and for those who had never grasped the basic concepts and skills of English grammar. Simple and easy materials were adapted for the use of these children. A few of them were able to progress from the simple materials into the English 2600 before the end of the year. These children gained much, too, from the "Beginning Grammar" series of filmstrips prepared by Encyclopaedia Britannica Films, Inc. The filmstrips were viewed alone or in small groups.

Other Britannica filmstrips were used by the more advanced pupils.

The class periods for English were fifty minutes long. At the beginning of each class period, a class activity which took from twenty to thirty minutes was provided. The time spent varied with the activity and with the importance of the activity. Also this class activity was usually an oral session. Sometimes a short written practicewas the culmination.

According to achievement scores, everyone needed practice in correct usage so this became a class activity. A major class project was selecting a profession to research and write about. All the groundwork was done together. Included were instructions for writing introductions, summaries, outlines, and bibliographies, use of the library, taking notes, proofreading of one's own papers, review of sentence and paragraph structure, capitalization and punctuation.

Another rewarding class experience was choosing and preparing a talk about some phase of Colorado history. These were taped and used in the Colorado history classes.

When the class activity was completed each day, the student began his individual study. Each kept his work and response sheets in a folder. By referring to the response sheet, the pupil could determine at a glance with which frame to begin. At the end of the class period each pupil wrote a brief report of what he had accomplished during that particular period. This enabled the teacher to check a child's progress and anticipate his need for new materials, especially if a child had been absent or had not had a personal conference with the teacher for a day or two.

The teacher aimed to contact every student each day, but so many contacts were impossible if several pupils had real problems to be solved.

Group explanation and instruction were given whenever possible. Often a small group would be ready to begin work on a new concept or skill. This group was taken aside for discussion and guidance.

The children wrote the scores they made on tests and class activities on a chart in the room. The report card grade was based on quantity and quality of work done. Attitudes, conduct, and cooperation were also considered.

SUMMARY OF RELATED RESEARCH

The author's thinking was guided by Dr. Kenneth Komoski, J. J. Lysaught (classroom teacher in New York City), J. E. Reed (English Journal, February 1961), and Robert F. Mager, Ph.D.

None of these authorities advocated the use of programed materials as the "cure-all" for teachers' problems. However, the author was convinced that individualizing instruction by using programed materials would make her teaching more effective.

RESULTS OF THE STUDY

The "Iowa Tests of Basic Skills" was given between March 1 and March 15 in the school year: 1960-61, 1961-62, and 1962-63.

The test results for the language skills of the 1960-61 and 1961-62 school years were used as a means of comparison for the progress made by the same students for the 1962-63 school year.

Figure I, colum 1 shows that the students entering the seventh grade ranged from a low of 4.2, two years and five months below the national norm, to 10.2, two years and seven months above the national norm. The class median was 7.8, eleven months above the national norm. A range of six years is shown in column 1 of Figure I.

Figure I, column 2 shows a low of 4.8, two years and nine months below the national norm, and a high of 10.6, two years and nine months above the national norm. The class median of 8.8 is eleven months above the national norm. The students at the end of the seventh grade maintained the eleven months advantage above the national norm. The range from the low of 4.8 to the high of 10.6 is five years and ten months.

After seven months with individualized instruction the student showed a low of 5.5, three years and five months below the national norm. The class median of 9.4 was seven months above the national norm of 8.7.

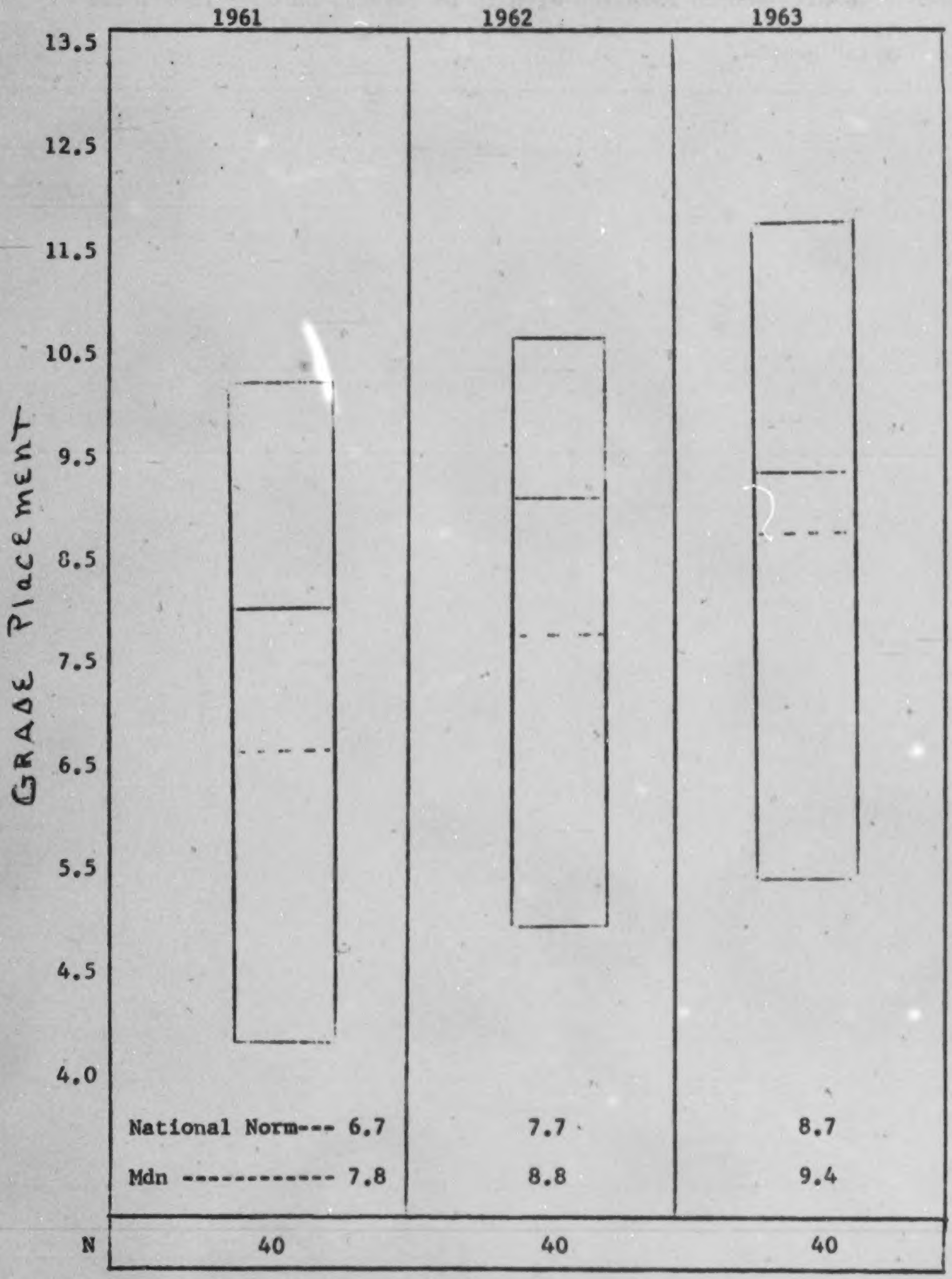
The range for 1963 was six years and seven months, an increase of nine months over the 1962 scores and seven months over 1961. The class median for 1963 shows that the students lost four of the eleven months advantage which they maintained in 1961 and 1962.

The range increase shown in column 3, Frequency Table I, was mostly at the higher grade placement levels.

It is quite evident by teacher observation that students who developed slowly in taking responsibility caused some loss at the class median. The loss may have been due partially to inadequate testing at the higher levels as some students' scores were too high to be charted on the "Iowa Tests of Basic Skills" graphs.

FIGURE I

A COMPARISON OF TEST RESULTS OBTAINED BY FORTY STUDENTS ON THE IOWA TEST OF BASIC SKILLS ADMINISTERED IN MARCH OF 1961, 1962, AND 1963.



FREQUENCY TABLE I

A COMPARISON OF TEST RESULTS OBTAINED BY FORTY STUDENTS ON THE IOWA TEST OF BASIC SKILLS ADMINISTERED IN MARCH OF 1961, 1962, 1963.

Grade Placement	f 1961	f 1962	f 1963
12.5 - 13.1	0	0	0
11.8 - 12.4	0	0	1
11.0 - 11.7	0	0	2
10.3 - 10.9	0	4	2
9.6 - 10.2	2	3	9
8.9 - 9.5	6	12	7
8.2 - 8.8	6	8	7
7.5 - 8.1	11	7	4
6.8 - 7.4	6	2	4
6.1 - 6.7	4	2	2
5.4 - 6.0	1	1	2
4.7 - 5.3	3	1	0
3.0 - 4.6	1	0	0
Number of Cases	40	40	40
Median	7.8	8.8	9.4

IMPROVEMENT RESULTING FROM THIS ACTIVITY

Individualizing instruction by using programed materials is a new method of instruction in most public schools. For the author, the process has been most challenging and invigorating.

With reference to the author's objectives, the following observations are pertinent:

1. The children did help set up their goals. Many achieved those goals--some with much prodding from the teacher, but many with no pushing.
2. A student briefly reviewed areas which he already knew and went on to another area.
3. Individualization has enabled each to achieve at his own pace. The able and ambitious have gained skills they would never have been exposed to in the conventional classroom; the slow achievers were able to work on a concept until it was well learned.
4. Individual help was almost always given when a child needed it. A few children have never formed the habit of asking questions. An instructor must identify these children and check their progress often. Working alone means a great adjustment must be made by them. They tend to sit and hope another child will ask the question they need the answer for. However, with encouragement from teacher and parents, these children will take responsibility and are proud of achieving on their own.
5. Better study habits were achieved. A majority of the children took pride in going ahead without being constantly reminded to get busy. Several planned to do a certain number of frames each day. Some aimed for a unit finished each week but found that too great a task and had to revise their goals.

Competition among many average and above average students was often quite evident and kept them working and achieving to their several abilities. A few, however, were capable of doing much but accomplished little because they were content to idle along with a low achieving pal.

6. Very few students voiced any derogatory remarks about the use of programed materials and working individually. After the adjustment to working alone had been made, almost every child felt that such instruction was to his advantage.
7. Collecting, writing, and filing necessary materials were time-consuming and often frustrating. At times the teacher found it almost impossible to keep some students supplied with needed materials.

Many teachers watched the author and her class procedure with interest. She helped a math teacher set up an individualized program. A social studies teacher used some ideas from the English project to change his teaching techniques. The author will guide Mrs. Carolyn Cooley, the seventh grade English teacher, in setting up an individualized program for the seventh grade English classes.

Teachers from other Colorado schools have visited the author's classes. Most of them expressed approval of the individualized instruction, and several plan to try it in their own classes.

The project as outlined in this documentation has been presented by the author to her school board by whom it was well received. The school administrators have given enthusiastic approval and support to the project. Others in the community can see how it can help their children.

RECOMMENDATIONS FOR FURTHER STUDY

In one year of study and experimentation the author has just begun to explore the possibilities of meeting the varied needs of children by individualizing instruction utilizing programed materials.

Next year this project will be expanded to include the seventh grade English classes.

During summer vacation the author, her co-worker, Mrs. Carolyn Cooley, and a typist were paid for two week's work getting materials ready for the expanded program. Although material is ready with which to begin the school year, more time should be provided in which to prepare other needed materials. Those materials already written by the author need to be more adequately evaluated and revised.

More time should be used for student-teacher conferences in which to set up goals for the year. Every effort will be made to set goals high enough for the capable but lazy student so that he will be challenged and become more productive.

Attention needs to be given to providing more and varied activities for the very high achiever.

The present course of study for English is inadequate. Tentative plans include the writing of a three track plan for the seventh and eighth grades.

The project should be continued for at least two more years. At the end of three years of study, some really significant aspects should be evident.

At present the author is sure that schools of any size could use programed materials to effectively individualize instruction. Such instruction might be used to good advantage in the lower grades, also.

A teacher must be willing to give unstintingly of her time and energy if she plans to use individualized instruction utilizing programed materials. She must have encouragement from her administration and co-workers.

EVALUATION QUESTIONNAIRE FOR 1962-63

I need your help to evaluate our English program for the year. Please answer the following questions. Be truthful--your answers will not affect your grade.

1. What were the advantages of working individually?____________________

2. What were the disadvantages?____________________

3. Have you been able to get help when you needed it?____________________

4. Do you think you have developed any good study habits?____________________
   If so, what?____________________

5. Did you use your time well?____________________

6. Would you have used your time better if we had set an amount of work which had to be accomplished by you this year?____________________

7. Would you like to go back to the routine in which everyone does the same lesson at the same time?__________ Why?____________________

8. Did you learn much in English this year?____________________

9. Did you learn more from filmstrips, lectures, or doing practices?__________

COMMENTS:____________________

RESPONSES GIVEN ON EVALUATION QUESTIONNAIRE

1. What were the advantages of working individually?

   a. I had a chance to learn more than I just had to.
   b. Some pupils work fast and could go ahead with other work.
   c. I didn't have to rush with my work and could learn more.
   d. I could work at my own speed.
   e. I did my own work instead of copying.
   f. I did less talking and more work.
   g. I remember longer when I learn something on my own.
   h. I learned to depend on myself.
   i. I could stop and study more on what I did not understand.
   j. I didn't have to wait on others.

2. What were the disadvantages?

   a. None (Response of 19 pupils.)
   b. I could goof off.
   c. I was bored.
   d. I sometimes forgot to work and lagged behind.
   e. I could be lazy because I didn't have to do a certain amount of work each day.
   f. Students who weren't watched did too much goofing.
   g. People interrupted me.
   h. None as long as certain class activities were included.

3. Have you been able to get help when you needed it?

   a. Yes (Response of 37)
   b. Sometimes (Response of 4)
   c. Most of the time (1)

4. Do you think you have developed any good study habits?

   a. Yes (37)
   b. No (2)

   If so, what?

   a. I learned to work alone without depending on anyone else. (2)
   b. Working alone and taking responsibility of going ahead with my work.
   c. Learned to spend my time well.
   d. Learned to work faster.
   e. Learned to study more and harder. (3)
   f. Learning a little at a time helped me learn more. (2)
   g. Learned to understand questions better.
   h. Learned to depend on myself. (3)
   i. No cheating.
   j. I learned to work steadily. (2)
   k. Improved my power of concentration. (2)
   l. I learned to take responsibility. (2)
   m. I learned to look up answers.
   n. I gained confidence in myself.
   o. Taking notes for future reference and setting up my own schedule.

5. Did you use your time well?

    a. Most of the time (11)
    b. Yes (9)
    c. No (5)
    d. Sometimes (17)

6. Would you have used your time better if we had set an amount of work which had to be accomplished by you this year?

    a. No (14)
    b. Yes (20)
    c. Probably (6)

7. Would you like to go back to the routine in which everyone does the same lesson at the same time?

    a. Yes (2)
    b. No (40)

    Why?
    a. I learned more the conventional way. (2 Yes Responses)
    b. I didn't have to wait on those who work slow. (14)
    c. I don't understand fast enough.
    d. I don't learn as much the conventional way.
    e. It is boring. (2)
    f. I like working at my own speed.
    g. It's harder.
    h. I had to go on when I wasn't ready.
    i. I like working individually better.
    j. I couldn't get as much individual help from the teacher.
    k. I can now go ahead to something else if I already know the lesson.

8. Did you learn much in English this year?

    a. Yes (37)
    b. Very little (1)
    c. Not as much as last year (1)

9. Did you learn more from filmstrips, lectures, or practices?

    a. Filmstrips (3)
    b. Lectures (8)
    c. Practices (34)

COMMENTS:

    a. I hope this system is continued in high school.
    b. I can do better next year on this type of program.
    c. I like this work and I hope it will be used in the future.
    d. I like working with the teacher to help.

LIST OF MATERIALS USED IN PROJECT

I. Ready programed materials
  A. English 2600
  B. English 3200
  C. Encyclopaedia Britannica Filmstrips
    1. Beginning Grammar
    2. Parts of Speech
    3. Understanding the Sentence
    4. Constructing Reports
  D. TMI-Grolier Self-Tutoring Course in Modern English
    1. Spelling
    2. Punctuation

II. Teacher-made programed materials

III. Practice sheets
  A. Workbook Practices
  B. Ditto Drills
  C. Drills from textbook (Our English Language, Grade 8, American Book Company, 1956)

COLORADO WESTERN STATES SMALL SCHOOLS PROJECT

DOCUMENTATION

GENERAL MUSIC CLASS
Junior R. Karas
Woodlin High School

COLO. STATE DEPT. OF
EDUCATION · DENVER
BYRON W. HANSFORD
COMMISSIONER

PROJECT DOCUMENTATION

INTRODUCTION

PROPOSAL: "An accelerated plan for a high school general music class designed to broaden music horizons within a limited time schedule."

Objective test scores and anecdotal records indicated a need for a required music class in the Woodlin High School. The Beach Music Test was administered the second week of school. The scores ranged from minus one to eighty-five percentile rank. The mean score was only 30.3 percentile rank.

Anecdotal records indicated that few o[illegible] students had any meaningful music experiences in or out of school.

Many schools throughout the Western States have, or are in the process of reorganization. This is a problem within itself; however, the establishment of the proper curriculum for these students from the various districts create still another problem. "The reorganization of District R-104 absorbed students who had had few opportunities in music discovery." The philosophy of the administration was to give the students of this district an opportunity to discover, experience and develop an understanding for music.[1]

Allowances in the schedule had to be made to enable the entire high school to meet in the same class. The traditional forty minute noon hour was shortened to twenty-five minutes and the remaining fifteen minutes was used for the experimental music class.

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[1] Decker, Harold, "Music in the Small High School," Colorado School Journal, (May, 1963).

p. 44 blank

Limiting a class to fifteen minutes a day presents many challenges to educators. In the Small Schools Project class many non-traditional methods were used to meet these challenges. These methods will be explained in more detail in a later chapter.

A survey and evaluation of the current status of music education activities in the public schools of the United States by Warren S. Freeman indicated a lack of music achievement throughout these schools.[1] If the large and small school alike cannot meet the minimum standards set by the music educators, then there is a definite need for improvement in the music curriculum in the large schools as well as in the small schools throughout the United States.

At the beginning of the project the Beach Music Test was administered.[2] The students from the Woodlin School rated very low. The mean score was only 30.3 percentile. For the complete test score information see Appendix A.

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[1] Freeman, Warren S., "A Survey and Evaluation of the Current Status of Music Education Activities in the Public Schools of the United States."

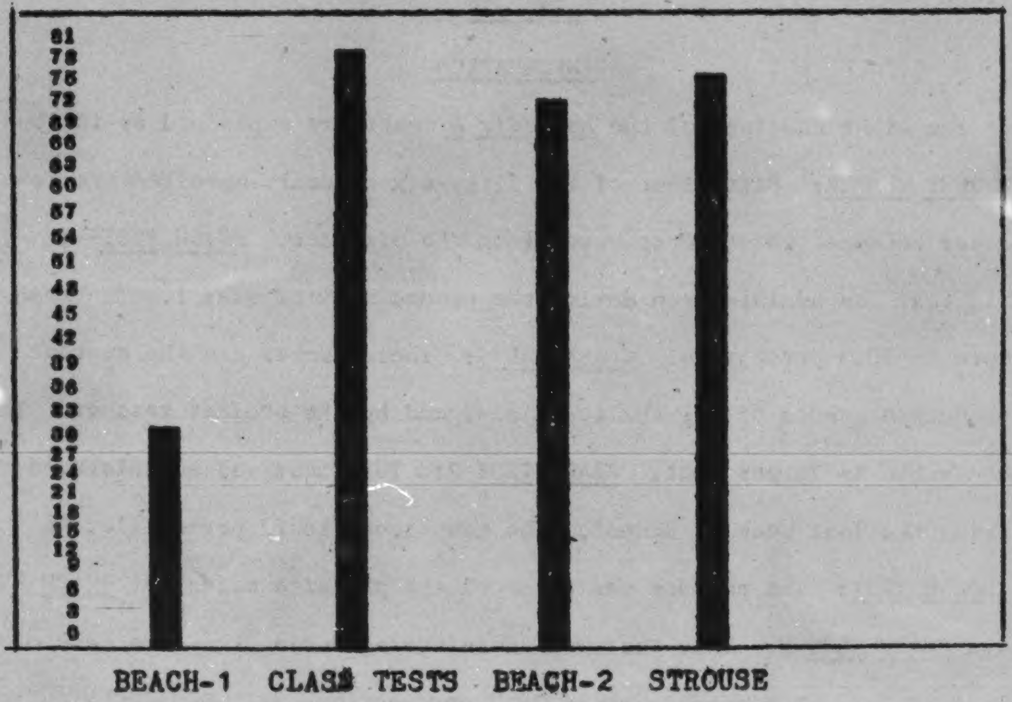
[2] Beach, Frank A., Beach Music Test, (Bureau of Educational Measurements), Kansas State Teachers College, Emporia.

APPENDIX A

INFORMATION

The eight headings of the Appendix A chart are explained as follows: STUDENT NUMBER: Fifty-four of the fifty-six students enrolled are included because two students moved from the district. BEACH TEST-1: This test was administered during the second week of school. The mean score is 30.3 percentile. CLASS TESTS: These scores are the average percentage grades of all the tests designed by the project teacher. The mean score is 78 per cent. BEACH TEST-2: This test was administered during the last week of school. The mean score is 72 percentile. STROUSE TEST: The purpose was to check the practice effect of BEACH TEST-1 with BEACH TEST-2. This test was administered during the same week of BEACH TEST-2. The mean score is 75.7 percentile. STROUSE PERCENTAGE: The scores were converted from percentile rank to percentage scores for experimental grading purposes. The Strouse Manual had recommendations for this procedure. AVERAGE: The average of the class tests were averaged with the Strouse percentage grade to determine the students letter grade. GRADE: These are the traditional letter grades received by the students. These grades were entered in the students permanent records. Students received one-fourth credit for this class.

MEAN SCORE GRAPH



APPENDIX A

STUDENT NUMBER	BEACH TEST-1	CLASS TEST	BEACH TEST-2	STROUSE TEST	STROUSE PERCENTAGE	AVERAGE	GRADE
1	40	86	99	90	96	91	B
2	70	80	99	99	100	90	B
3	30	62	50	55	86	74	C
4	30	66	70	50	85	75	C
5	60	90	99	90	96	93	A
6	1	83	90	85	93	88	B
7	5	66	50	60	87	77	C
8	-1	61	50	50	85	73	C
9	70	86	85	90	96	91	B
10	85	93	99+	95	98	95	A
11	45	70	80	80	92	81	C
12	15	71	80	80	92	82	C
13	1	76	55	35	80	78	C
14	45	85	95	95	98	92	B
15	45	83	80	85	93	88	B
16	30	66	65	70	88	77	C
17	5	82	70	75	90	86	B
18	40	76	99	95	98	87	B

APPENDIX A

STUDENT NUMBER	BEACH TEST-1	CLASS TEST	BEACH TEST-2	STROUSE TEST	STROUSE PERCENTAGE	AVERAGE	GRADE
19	60	89	80	80	92	90	B
20	35	74	60	80	92	83	C
21	35	69	65	85	93	81	C
22	60	68	65	75	90	79	C
23	70	85	85	85	93	89	B
24	60	93	90	90	96	94	A
25	55	89	90	85	93	91	B
26	60	91	95	95	98	95	A
27	50	98	65	80	92	95	A
28	10	61	55	55	86	73	C
29	60	79	90	95	98	88	B
30	15	63	30	45	84	73	C
31	1	85	45	75	90	87	B
32	25	84	70	80	92	88	B
33	5	82	65	45	84	83	C
34	60	96	95	95	98	97	A
35	35	86	65	80	92	89	B
36	65	95	95	95	98	97	A

APPENDIX A

STUDENT NUMBER	BEACH TEST-1	CLASS TEST	BEACH TEST-2	STROUSE TEST	STROUSE PERCENTAGE	AVERAGE	GRADE
37	1	82	50	55	86	84	C
38	20	77	65	75	90	83	C
39	10	75	50	45	84	79	C
40	10	74	70	50	85	79	C
41	25	92	75	95	98	95	A
42	10	65	60	75	90	78	C
43	25	77	65	80	92	85	C
44	1	80	55	80	92	86	B
45	20	64	45	50	85	74	C
46	30	74	75	80	92	83	C
47	45	92	65	90	96	94	A
48	5	87	65	55	84	85	C
49	15	95	90	90	96	95	A
50	1	71	70	60	85	78	C
51	25	91	75	85	93	92	B
52	5	82	55	60	85	83	C
53	5	85	70	85	93	89	B
54	5	65	50	70	88	76	C

CHAPTER I

NEEDS INDICATED BY DATA RECEIVED

The Woodlin School District R-104 has fifty-six members in grades nine through twelve. These students came from a district encompassing over seven hundred square miles. Only thirteen of the fifty-six participated in the traditional high school music program. Of the remaining forty-four students very few indicated having significant musical experiences. The year previous to the project, students indicated little interest in learning more about music in that only three students enrolled in an elective general music class offered that year. A few girls were interested in singing but that was all. From these anecdotal records it was concluded that the students from Woodlin School needed a required music class to justify its existence in the curriculum.

The need for a required accelerated music class was obvious in the Woodlin School because of its unique situation. It is believed, however, that many of the Western States small schools are in this same situation. Most of the Western State small schools have music educational programs that seem to be adequate. Most of these small school music programs consist of a Concert (Marching) Band and/or a Choir. If the survey and evaluation made by Freeman is valid, we can conclude that music curriculum of Band and Choir is inadequate. Therefore, many schools need a supplementary music course for all high school students and not just for a select few. It is believed that the techniques, materials and equipment used by this project could be useful in developing a supplementary music course in both the large and small high school.

CHAPTER II

PROJECT GOALS AND INTENTIONS

It is believed that a fifteen minute general music class can be effective in broadening music horizons, enhance aesthetic appreciations, and provide significant experiences for practical ulterior exploitations. A required general music class can be effective in supplementing the present-day music curriculum of most schools.

This experimental music class of the Western States Small Schools Project attempted to:

A. Provide significant learning experiences enabling students to improve their music achievement.

B. Provide significant experiences that contribute to the understanding and appreciation of many types of music.

C. Provide rhythm and pitch concepts as tools to independent singing. With the proper rhythm and pitch concepts it is possible to sight-read music from the printed score.

D. Provide successful experiences that will effect student behavior and attitudes towards music.

E. Experiment and evaluate several non-traditional teaching methods.

The intention of the teacher was to present this music course as an academic subject. However, it was found that music as an academic subject has little appeal to the high school student. The students and the parents of the community were most interested in music being performed than in music being learned. Therefore, more singing experiences were offered, interest grew and this resulted in many successful performances.

At this point the experimental class became a performance group as well as an academic subject. Music performance is an outgrowth of good educational principles. The fundamentals should be taught first--then perform--not try to learn fundamentals during performance.

CHAPTER III

PLANNING AND CONDUCTING CLASS ACTIVITIES

The shortness of time influenced the planning and conducting of the class. Time had to be utilized for teaching and nothing else. Therefore, students were assigned to help do certain teacher duties such as taking roll-call and distributing the various class materials.

The lectures and demonstrations had to be planned carefully enabling students to assimilate the material presented in a short time. Questions and discussions from the students had to be eliminated in this type of planning. Carefully planned lessons were presented on the Overhead Projector. (See sample acetate sheet in Appendix B.) Supplementary ditto outline and work sheets were available if needed. (See Appendix B.)

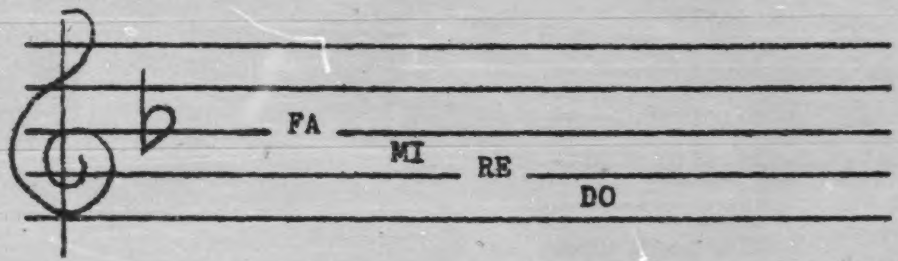
APPENDIX B

SAMPLE ACETATE TRANSPARENCY

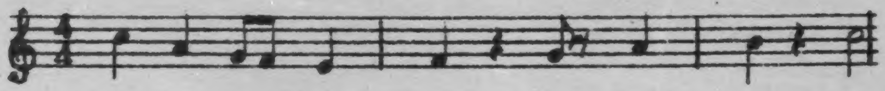
TO

MUSIC LECTURE

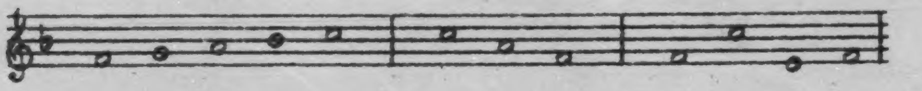
THE LAST FLAT (♭) TO THE RIGHT OF THE KEY SIGNATURE IS THE SYLLABLE " fa ".



RHYTHM DRILL:



PITCH DRILL:



TERMS: A CONCERTO IS AN INSTRUMENTAL SOLO WITH ORCHESTRA ACCOMPANIMENT USUALLY IN SONATA ALLEGRO FORM.

APPENDIX B

SAMPLE SUPPLEMENTARY DITTO OUTLINE SHEET

COMPOSER: Wolfgang Amadeus Mozart (1756-1791)

A child genuis. Considered great in choral, symphony, piano and all types of ensemble music. One of the first to compose and perform piano concerto music.

FORM: Concerto:

1. Exposition-----
2. Development----
3. Recapitulation-
4. Cadenza--------
5. Tutti section--

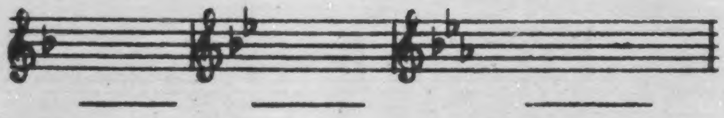
TERMS:

Concerto:

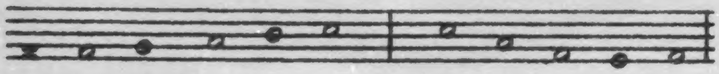
Cadenza:

Tutti:

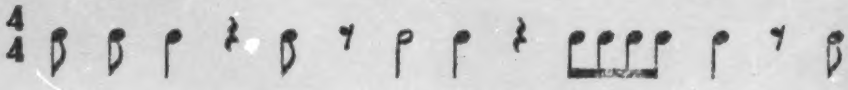
EXERCISE: 1. Find "do".



2. Pitch drill.



3. Rhythm drill. Put in measure bars.



Specific seating or standing arrangement was not assigned because students were moved frequently to adjust to the varying experiences.

EXPERIENCE	ARRANGEMENT
Unison singing.	Miscellaneous
Two part singing.	(A) All boys for part one. All girls for part two.
	(B) Boys and girls for part one. Boys and girls for part two.
	(C) Boys for part one and two. Girls for part one and two.
Three part singing.	(A) Girls on part one and two. Boys on part three.
	(B) Boys on part one and two. Girls on part three.
	(C) Girls and boys on all three parts.
Four part singing.	(A) Part one girls. Part two girls. Part three boys. Part four boys.
	(B) Boys and girls on all four parts.

Sometimes the seating arrangement was diagrammed on the overhead projector and as the students identified their general places they would go to their respective positions.

MUSIC THEORY:

An analysis of the Beach Test indicated a need for a general course in music fundamentals. Music theory became a part of the lecture, review and test sequence. One class period in two weeks was used as a lecture period. (Refer to music class schedule in Appendix C.) Pertinent information was presented by the means of the Overhead Projector. Supplementary outline ditto sheets were used also. (Refer to Appendix B.)

The basic tools for music understanding were presented in this class. These tools aided in the pitch, rhythm, harmony and listening concepts.

OUTLINE OF A FEW THEORY LESSONS

1. Key signatures.
2. Major and minor scale concepts.
3. Time signatures.
4. Note names and note values.
5. Solfeggio.
6. Terms.
7. Some basic music forms.
8. Names of instruments.
9. Piano keyboard.
10. Chords.
11. Music score experience.
12. Clef signs.

APPENDIX C

MUSIC CLASS SCHEDULE

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
Lecture	sing	sing	sing	sing
Sing	sing	sing	review	test

This schedule followed a two week sequence. This allowed the class to have an average of three tests each six weeks; three lectures each six weeks and three reviews. The remaining twenty-one class period were used for singing experiences. These experiences also included exercises on pitch, rhythm and harmony concepts.

MUSIC HISTORY:

Materials were accumulated from various music history books. The history of music is such a broad subject that much discrimination had to be made for this particular type of a class. Discriminate facts from the "Baroque Period" through most of the "Romantic Period" were presented. Students became familiar with fifteen to twenty composers, some of their compositions and their main contribution to music.

PITCH CONCEPT:

Pitch patterns were exercised as a part of the singing experience. Solfeggio was taught during the lecture and work sheet sequence. The basic approach to this concept is advocated by the music department at Colorado State College at Greeley, Colorado.[1] Some alternation to this approach was made because the overhead projector made it possible to accelerate the rate of progress.

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[1] George, Marvin, Course of Study Workbook, (Colorado State College, Greeley, Colorado.)

APPENDIX D

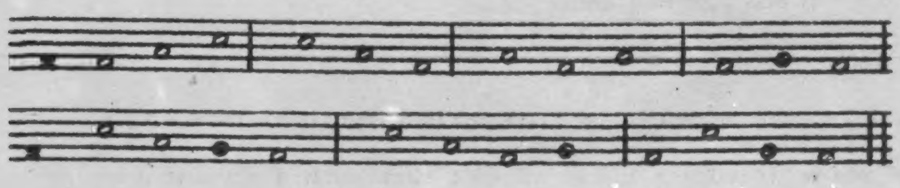
PITCH CONCEPT SAMPLE

TEACHER SINGS THE FOLLOWING PITCHES:

do, mi, sol---sol, mi, do---mi, do, mi
sol, mi, do, re---sol, mi, re, do

CLASS IMITATES:

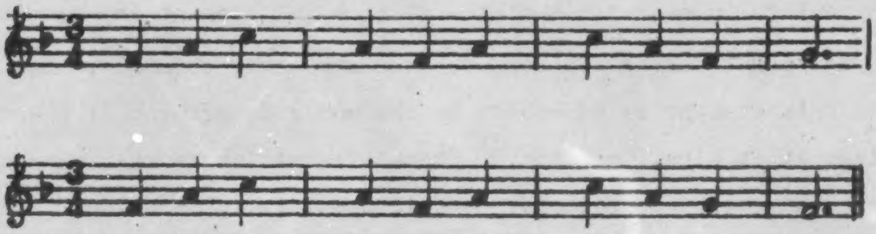
TEACHER SINGS AND POINTS TO THE NOTES ON THE STAFF.



STUDENTS IMITATE:

TEACHER POINTS TO THE NOTES ON THE STAFF AND THE CLASS RESPONDS.

SAMPLE READING SONG:



CHAPTER IV

RESULTS

All of the students in Woodlin high school had an opportunity to participate in group aesthetic experiences. The choir performed on four occasions. The community praised the efforts of the students and the efforts of the school because it was the first time they had heard an entire high school student body sing together as a performance group.

The second performance was in a competitive situation. The choir placed Superior in the Yuma-Washington County Music Contest. Later the group was invited to perform for the dedication ceremony of the school auditorium, and for the baccalaureate exercises later that spring. All of these performances were meaningful experiences for many students who would have otherwise never been able to participate in such an aesthetic activity.

The students attitudes towards music were definitely a contributing factor in these successes.

The measureable means of success is through the standardized achievement tests. During the first week of school the Beach Music achievement test was administered. The mean score was thirty and three tenths percentile. The range of the percentile rank scores were from minus one to eighty-five percentile. The students were not allowed to go through the test for correcting purposes after the test had been scored because future plans were designed to re-test these students with the same test to measure the success of the proposed project. Therefore, the Beach Music test was administered during the last week of school in May of 1963. The mean score of this test was seventy-two percentile. Through the efforts of a fifteen minute a day required music class the students raised their achievement forty-one and seven tenths points in percentile rank standing.

It was felt that there may have been a chance of practice effect on the second Beach test that was given. Therefore, another standardized achievement test was administered. The Strouse Music Test[1] mean score was seventy-five and seven tenths percentile. It was concluded that there was no practice effect by using the same test if the students did not correct responses from the first test given. See Appendix A for test results.

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[1] Strouse, Catharine E., Strouse Music Test, (Teachers College, Emporia, Kansas.)

CHAPTER V

RECOMMENDATIONS

It is believed that many schools throughout Colorado have a need for a better music educational program. To prove this belief a standardized test should be developed and administered to all Colorado high school students. After the results are tabulated a course of study should be designed as a guideline for Colorado Music Educators. At this time it is believed that many schools would find use for an accelerated music class such as outlined in this proposal.

COLORADO WESTERN STATES SMALL SCHOOLS PROJECT

DOCUMENTATION

INDEPENDENT STUDY
ADVANCED SCIENCE COURSE
Marshall T. Steen
Meeker High School

COLO. STATE DEPT. OF
EDUCATION · DENVER
BYRON W. HANSFORD
COMMISSIONER

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ADVANCED SCIENCE COURSE AT MEEKER HIGH SCHOOL

TEACHER: Marshall T. Steen

SCHOOL: Meeker High School

LOCATION: Meeker, Colorado

DATE: June, 1963

CLASS SIZE: Four students

SCHOOL PROJECT DURATION: The initial class was organized in the 1960-61 school year with four students, was continued in 1961-62 with four students and in 1962-63 with four students. From the preregistration results, it appears that there will not be a need for such a class in 1963-64. The course is set up whereby it can be put into the curriculum at any time without need for working it into the school schedule or a need for obtaining additional instructors.

Need indicated by student data, curriculum deficiencies and student behavior

Top ranking students that had taken the biology, chemistry, physics sequence indicated a desire to continue studies in the sciences.

Follow-up studies on our graduates from former years, which included personal contacts, gave evidence that any additional help that could be given in this area would be a helpful one.

Meeker High School requires twenty-two credits for graduation. The schedule of classes is set up with six hours in the day plus a half hour activity period. There are no study halls as such with each teacher requested to allow about twenty minutes at least during the period for study purposes. As a result, with six classes a day, it is possible to get a maximum of twenty-four credits during the four years of high school. With this large number of courses open for them to take, students find it possible to take as many as six courses in science if they wish. This

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would include general science as a freshman, biology as a sophomore, biology II and chemistry as a junior, and physics and advanced science as a senior.

What unique advantages or weaknesses of the small school situation prompted this effort

It is without question that large high schools are able to offer a greater variety of subjects than a small high school can. Also, because of the large number of students, it is possible to get larger numbers of students in these classes and this warrants hiring additional teachers for this purpose.

In the small school situation, existing teachers must be used. The unique advantage of this advanced science class as it is set up is that it requires a minimum of teacher time, does not require a change in class scheduling, can be worked in any period or periods in the day and it can be taught to any number of students. In fact, the smaller the group, the better this works out.

An attempt was made to find actual research made relating to this project, but was unable to find any.

An article written by Dr. Joseph J. Schwab of the University of Chicago and Chairman of the Teacher Preparation Committee based on "Inquiry, the Science Teacher, and the Educator" printed in the School Review, summer issue, 1960, points up the thinking I have had. The following quotes from this article I feel will clarify the issue. As you will note, this idea is not necessarily relegated only to a small school situation, but it can work out in any size school.

"To avoid these unintended meta-consequences of our teaching, we need to imbue our courses and our exposition with the color of science as inquiry to give the student an effective glimpse of the vicissitudes of research.

"The teacher whose past training involved passivity and dependence and who tends to demand the same of his students, will need, in addition, to discover the possibilities of self-education--not only for himself but for his students. There are two reasons for this suggestion.

"First, self-instruction is the only practicable solution to the problem of "coverage." The problem of finding enough time to "cover" what we wish to cover is not and, for years, has not been, a problem of finding enough student time. It has been a problem of finding enough classroom time and enough teacher time to "cover," in the conventional way, within the conventional framework of the school day, on the assumption that all "coverage" must be coverage in the classroom. I now suggest that a substantial part of "coverage" be "covered" by the student on his own.

"Second, self-instruction skill is of great post-school value. For the teacher, it will free him from dependence on inculcative summer refresher courses and institutes and free that time for more interesting and constructive work. For the layman, it will give access to books and magazines from which he is able and willing to learn without the crutch of formal classes and instruction.

"Self-instruction must become pervasive if it is to be effectively developed. If science classes alone demand it while others do not, the students will view it as a special and unreasonable imposition. If all departments demand it, it becomes a regular part of the school experience and students will soon cease to be intimidated by it.

"I believe that in the present climate of attitude and habit, inquiry will be immediately accessible only to a few. For most students entering high school in the next year or two, it will be a shocking change of pace. For most high school students entering college in the next few years, it will come as a similar shock. But this very sequence suggests what the future can hold."

Today, the American student must assume more and more individual responsibility for his academic achievement if his later progress is to be enhanced. No longer can the student who has failed to realize his capabilities place the blame entirely upon the teacher. To develop responsibility the student must be given a chance to assume responsibility. Dr. Crnkovic of the Brigham Young University Laboratory School states, "We speak of teaching the individual child but we end up teaching the class as a whole." In a class such as this advanced science class designed primarily for individual research, this is well nigh impossible.

The philosophy of this class is much like that of the programed learning type class where each student is allowed to progress at his own rate to enable him to derive maximum benefits from the educational program.

The problem and need

Since the high school has done away with study halls and has required students to take six subjects per day, it has made it possible to work in additional courses for the able and ambitious student. The latter has posed a problem in the fact that we have hours available for these students to take these courses but no additional teachers.

Students proposing to take science oriented courses in college need all the background that it is possible to give them to better prepare them for the rigorous requirements to be met in college.

To quote the New York Mirror, "Our national survival hinges in great part on an adequate supply of scientists and specialized manpower to ensure our technological progress." These must come from both the large and small high school.

To give an indication as to the use this course may have to the individual student involved in this year's class; student "A" has accepted an appointment to West Point Military Academy, student "B" is setting up his college course to lead to a medical doctor's degree, student "C" is planning to take a course in electrical engineering and student "D" plans to become a dentist. All of the students had the option to accept one or more scholarships to a number of colleges and universities. Student "A" and "B" attended the Climax Molybdenum summer institute in science at Colorado State College of Education at the end of their sophomore year, students "B" and "D" attended the Science and Humanities Symposium at Utah State this spring as the result of research papers sent in for evaluation, student "D" presented his paper on the "Making of Artificial Hailstones" at this symposium where he was awarded a Litton Industries trophy for excellence, student "D" also attended the National Symposium on Science and Humanities at West Point this spring and student "D" attended a National Science Foundation summer institute on atmospheric physics at the University of Nevada in the summer following his junior year. From this list of accomplishments and aims, you can readily see that the caliber of students was high and the opportunity to do individual study was made use of.

Organization of the study and procedure

After senior students have taken chemistry, physics and biology, and have maintained at least a 'B' average in these courses, they may take the course in advanced science. This course is designed as an individual research course.

At the beginning of the year, I meet with the students to decide on the subject areas in science where they would like to spend additional time. Blocks of time are then laid out outlining the year's work. This is a flexible thing where the time spent may be shortened or lengthened as the year progresses. I act in a supervisory and advisory capacity with a few lectures spaced through the year.

The students choose the hour in the day which best fits in to their class schedule. For example, this year three of the students met second period when I have a General Science class and the other student has sixth hour when I have chemistry and physics classes. The students are given the freedom of moving between the library and the laboratory as they choose depending upon which phase of the work is being pursued.

Some of the subject areas we have covered have been topology, anatomy and kinesiology of a cow's head, the sun as scientists know it now, the effects of electrical impulses of small voltages on animal behavior, insect collection and taxonomy, meterology, animal populations, plant ecology of the ridge north of the school, plant toxonomy, electricity and electronics, rocks and minerals, the nature of the universe and plant morphology.

When the students were working on individual research, either or both primary and secondary as they chose, an arrangement was made with their English instructor to have this coincide with his instruction on research paper form and procedure. In this way, these students were given an initiation into the writing and setting up of a research paper in proper form. This will be excellent preparation for the many required papers they will have to do in college. This, I feel, has been a sadly neglected area in high school instruction. Please see the results of this research appended to this paper.

We worked out a library exchange with other libraries such as the University of Colorado and the Air Force Academy library to supplement research materials from our library for their papers.

This year, I also have two students taking their physics course through the use of the Dr. White films. Student "C" plans to go into electrical engineering and sat in on the films pertaining to electricity, magnetism and electronics to help him improve his background in this area.

Evaluation

I have the results of the Iowa Test of Educational Development taken in their junior year which has as part of it's score evaluation, Background in the Natural Sciences and Interpretation of the Natural Sciences. This test was again administered at the end of this year.

On page 75 is given the results of these tests together with the final grade average for each student (A-4, B-3, etc.), the results of the scholastic aptitude test and their I.Q. based on results of the Lorge Thorndike Intelligence Test.

As you will note, from March of their junior year to May of their senior year standard scores either remained the same (one case with student "B" on test 2) or they were increased. Student "C", who is an average student with average abilities, showed the greatest improvement. The other three students are all above average students and had less room for statistical improvement percentage-wise.

I conclude from this one set of tests, although this may be a precarious thing to do, that this course has proved to be of benefit. The research papers give evidence of a great deal of effort expended and knowledge gained.

After consulting with former graduates, who have taken this course, I find there is a definite indication that the introduction of this course has proved to be of value. To give one small example, one of my former students came to me a few days ago and said she had run across some books at college that she thought I might use to good advantage in this course and would bring them home on her next trip to Meeker for our use.

This course has been offered for three years with an enrollment of four each year. This is the first year it has been under the WSSSP as a project area. Because the plan for execution of such a course involves a small amount of teacher time and it is possible to schedule students during any free period students have in the day, it helps to allay the problem mentioned above; that of time available to teach them.

Conclusions and recommendations

In addition to being seniors and having at least a B average, care must be taken to screen those students entering the advanced science course because of the liberties allowed. This class demands acceptance of considerable responsibility for educational progress on the part of the individual student. I suspect, to be truly effective for more students, some aspects of the plan must be introduced in the early school years with gradual expansion and increase in individual responsibility as the student matures.

The advantage in using a method such as that used in advanced science is that it makes it possible to give advanced training to small high school students without the expenditure of much more teacher time or additional money. I feel that individualization of instruction, the more effective utilization of personnel and a more effective organization of the school are three things we should constantly strive to improve.

To me, the three years of this program has convinced me that the course has high merit and is filling a needed void.

IOWA TESTS OF EDUCATIONAL DEVELOPMENT

Student	Test 2, Background in Natural Science (standard score and percentile)		Test 6, Interpretation of Natural Science (standard score and percentile)		Final Grade Point	Scholastic Aptitude Test	Lorge Thorndike I.Q.
	3/62	5/63	3/62	5/63			
"A"	29-99	30-99+	28-98	33-99+	4.000	M-707 V-606	136
"B"	25-94	25-91	30-99	31-99+	4.000	M-696 V-613	135
"C"	23-87	27-96	18-70	27-95	3.063	M-469 V-370	110
"D"	26-96	27-96	27-97	31-99+	3.854	M-608 V-593	137

COLORADO WESTERN STATES SMALL SCHOOLS PROJECT

DOCUMENTATION

INDIVIDUALIZED INSTRUCTION
JUNIOR HIGH LANGUAGE ARTS
Bernice Hayes
LaVeta High School

COLO. STATE DEPT. OF
EDUCATION · DENVER
BYRON W. HANSFORD
COMMISSIONER

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A PLAN FOR INDIVIDUALIZING INSTRUCTION IN THE LA VETA, COLORADO SEVENTH AND EIGHTH GRADE LANGUAGE ARTS PROGRAM

Our culture demands that we make the most of our human resources. Research says that children are not taught, but that they can learn. There is an inborn urge to grow in every human being. It may be smothered by psychological problems but therapists tell us that even in the most difficult cases, the urge to grow is present.[1] If this is true then our school systems, our teachers, must put emphasis upon the learning rather than upon the teaching to make the most of our human resources. How can we do this if we do not take into consideration each child as an individual?

The idea of grading children, a year to a grade, was first introduced in Boston in 1848, and was avidly advocated by Horace Mann and Henry Barnard. Since 1848 this has been the chief factor in the assignment of pupils, with group instruction as the primary characteristic.

With the opening of doors of public schools to more and more children, instead of the former more highly selected groups, and the discovery through experimentation and testing of individual differences we have found this system to include children in the same group or grade with varying abilities. The small school is unable to group children into ability sections because of finances and small numbers of children. Consequently, we find a great diversity in ability and achievement within a classroom group in a small school.

When you examine the scores of any standardized test, you are impressed, with the wide range of achievement and abilities of your children. At the

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[1] H. Gerthon Morgan, "How to Facilitate Learning," NEA Journal, Vol. 49, Oct. 1961, p. 54.

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beginning of my project, the first two days of the school year 1962-63, I gave the Metropolitan Achievement Test Form A to my children. The reading range was from 4.0 to 10+. This is a difference of 6+ grade levels. The language range was from 5.0 to 10+. This is a difference of 5+ grade levels. The spelling range was 4.4 to 10+. This is a difference of 5.6+ grade levels. The diversity in mental ability was from 77 to 129.

For many years I have felt the restrictions placed upon children through a graded program and felt a need for better individualized instruction than I could give through a graded curriculum. There was an article in the September 1961, N.E.A. Journal by Dr. Alexander Frazier titled, "IMPROVING THE LEARNING SITUATION" which influenced me to the extent of forming a new personal philosophy of education. My main objective for my project class, to free my learners to learn, was taken from this article. Dr. Frazier states in his article that there are three restrictions from which we must liberate learners; too closely graded subject matter; the use of a single text as the curriculum; and too much concern for group achievement instead of concern for individual achievement. After a thorough study of what Dr. Frazier said, I realized that to remove these restrictions and what to do in their stead would give me the basis for my individualized junior high English program.

With the floating period schedule used this past year, each period was seventy minutes. To facilitate for continuity between the language arts program and the reading program, I had these youngsters for two periods giving a time block of one hundred forty minutes with a break of five minutes. By placing the seventh and eighth grades, a total of twenty-eight children, in one classroom, I felt that I could alleviate any feeling that a child would have as to what level of work he or she would be doing. As it turned out, this was not a problem. By placing the two groups together I did have three more much needed planning periods a week.

When we have graded level groups, the curriculum for a particular group is determined by the grade level. This definitely does not take care of the learning for those who are below in achievement of the particular grade level, nor does it take care of those above the achievement of the particular grade level. The wide variations in the stages of development of this group of youngsters has already been pointed out. It ensues then that a graded program does not take care of individual continuity of learning.

My plan, therefore, would have to be to start each child where he was. As suggested by Dr. John I. Goodlad of UCLA at the Western States Small Schools Project Workshop at Colorado State College, blocks of learning followed a common course but there was a difference in the amount of work and enrichment of each individual child. The better students worked more independently while the average and slower students needed work which was broken down into simple sections with greater use of examples and drill. This made the language arts program more worthwhile and stimulating to the more able pupils and more usable by the less able.

It follows that if we individualize material presented for learning that we will deviate from the use of a single text, the second restriction of free learning. The materials used for this project were English 2600, SRA Organizing and Reporting Skills Lab, SRA Reading Lab IIIa, SRA Spelling Lab IIIa, SRA Reading for Understanding Lab, Scholastic Literature Unit, Animals, a series of six filmstrips titled Coach for Good English, a series of twenty-four filmstrips called Special Language Arts, Cenco World I and II, Cenco English I and II, recordings, teacher-prepared reading program, various textbooks and workbooks.

Early in September I started the children in English 2600. I chose this on the recommendation of Dr. Kenneth Komoski during our 1962 summer workshop and from a report made in the September 1959, English Journal by the Board of Reviewers. This report stated that the content of English 2600 offers the traditional program of English grammar as found in school texts but "is far more thorough in basic elements than the usual text and very much more interesting." This programed material is definitely designed to take care of individual differences in the children, for each child does proceed at his own speed. It is published in book form, but it performs the same function as a machined course, for the student moves from one box on one page to the similarly placed box on the next page. Here he finds the answer to the question or problem of the previous page, and a new question whose answer is at the same spot on the succeeding page. He can thus progress as rapidly as he makes correct responses, for he needs to go back only to correct an error. The book is divided into eleven units. Along with the programed book comes a test booklet. There are two tests at the end of each unit with a midway test at the end of unit five and a final test. Most programed materials recommend children to make a grade of ninety per cent on a test before continuing. However, I set the goal at eighty per cent for both grades since the seventh grade students had very little formal grammar before this time, and the eighth grade was a slow group. Sometime during the last of September I set the only group goal. I told those youngsters who had not finished the first unit that they would have to do so before October 1. There were so many youngsters who did not make the grade of eighty on the test that we took one period to discuss the programed material again. The children came to the conclusion that the answers were so mechanical that not enough thought and study had been applied. The viewpoint of the children toward English 2600 completely changed. Because this programed material does not have any branching for remedial work, I have used textbooks, workbooks, ditto sheets of exercises, filmstrips, Cenco English I and II, and the correction file for composition work for this purpose. These same materials were used for review work. I had five students complete the English 2600 in December. One of these five entered our school October 1, and completed December 7. Another student who entered November 1, finished December 13. With the exception of two students, all were finished by the end of the school year.

About the middle of September, I introduced the children to the SRA Organizing and Reporting Skills Lab. This lab makes provision for individual differences as do all SRA materials. Each unit of work is designed to accommodate individual differences in learning capacity and rate, and in reading ability. Each child corrects his own work and has the advantage of knowing immediately how accurately and successfully he has completed each task. There is written work required which is checked by me, and then corrections are made. The lab is divided into seven units: (1) The Form of the Report, (2) Sticking to the Point, (3) Order in the Paragraph, (4) Quality in the Paragraph, (5) Note-taking and Outlining, (6) Making an Outline, (7) Using the Summary Activity Project.

The following skills are developed:

1. Ability to identify the parts of a report, determine their function, and put them in the right order.

2. Ability to detect extraneous ideas in a report or factual information not related to the order.

3. Ability to write paragraphs and reports in which information is presented in an orderly manner.

4. Ability to recognize and to write properly developed paragraphs.

5. Ability to detect and avoid repetitous language and ideas.

6. Ability to locate and take notes from passages that relate to questions or topics assigned.

7. Ability to outline in correct form the main and subordinate ideas in a passage.

8. Ability to construct from notes an outline for use in making a report on an assigned topic.

Four students completed this lab. The remainder of the group will continue this work next year.

Placement tests for the SRA Reading Lab IIIa were given. This test places each youngster at his own reading ability level. This box ranges in reading ability from third grade level to twelfth grade. The student starts where he is in independent reading and is allowed to master the skills of that level at his own rate. He then progresses to a higher reading level. Each child has a book in which he records his answers as well as his reading progress. Two started at fourth grade level, eleven at fifth grade level, seven at sixth grade level, and six at seventh grade level. Two completed at sixth grade level, six at seventh grade level, nine at eighth grade level, five at ninth grade level, three at tenth grade level, one at eleventh grade level, and two at twelfth grade level.

Then, I introduced the Scholastic Literature Unit, Animals. This is a paperback library containing forty anthologies plus seventy other books of twenty different titles. The unit is built on differentiated materials to meet the problem of various differences among individual students. The reading of these books ranged from five per pupil to twenty per pupil. One child who was almost forced to read last year, read twelve of these books.

The first six weeks I prepared individual spelling lists from misspelled words used at different times in the class. I also placed nine of the best spellers on the listening center to learn words from a record made by the Diction Disc Company titled Spelling Aid. In November I gave the Diagnostic Achievement Survey for the SRA Spelling Lab IIIa.

Each student's spelling strengths and weaknesses are discovered and mapped out for his individualized program through this survey. During the last eight weeks the students were divided into four groups according to achievement to study various lists of spelling words via tape recordings made by the teacher. This idea was taken from an article printed in The Bulletin of the National Association of Secondary School Principals.

Several days before the Christmas holidays, the children were given the placement tests for SRA Reading for Understanding Lab. This lab consists of four hundred reading comprehension exercises on one hundred levels and is designed to aid each student in improving his ability to get meaning from his reading. I have found that it also builds a vocabulary. The number of exercises per pupil covered from this lab varied between twenty and forty-five.

One of the most important aspects of our English work in junior high school as well as high school, is written composition. I have already mentioned the SRA Organizing and Reporting Lab written work. Assignments in composition work were made to the whole group as well as to individuals. I expected the slower students to write with a large measure of accuracy; the more gifted to write with accuracy and to develop critical, imaginative, and creative thinking. To check all composition work the following check list was adapted from the one presented by Jane Z. Carroll in The English Journal.

CHECK LIST

CORRECTION SYMBOL	COMPOSITION MISTAKE	PENALTY
ROS	Run-on Sentence	10
FRAG	Fragmentory Sentence	10
AWAK	Awkward Sentence Structure	10
AG	Faulty Agreement (Pronoun or Verb)	10
M	Unclear Meaning	3
OM	Omission of Needed Words	3
VB	Verb Errors	3
CASE	Case Errors (Omission of Apostrophe, etc.)	3
S	Spelling	1
P	Punctuation	1
C	Capitalization	1
R	Repetition (Monotonous)	1
N	Neatness (Scribbles, Blots, Margins, etc.)	1

As suggested in this same article, a filing cabinet was set up sectioned with the symbols used on the check list. Under each symbol a child found a source of materials obtained from old workbooks and textbooks. From these materials individual assignments were made to correct a particular mistake. As stated earlier this file was also used for remedial work for English 2600 and for review work.

Early in February the youngsters started on an individualized reading program set up from old literature texts. Thirty-two stories were chosen from each of the seventh and eighth grade books. A file was made to contain two tests (one short answer, the other complete sentence answer) for each story. When a child completed a story, he immediately took a test obtained from me. The test was graded by the teacher. If a passing grade was not made, the child reread the story and took another test. Each child's grades were recorded on a chart. Eight youngsters completed all thirty-two stories. With the exception of four the remainder of the twenty-eight youngsters completed half or more of the stories.

Small group activities took place during the school year. Two groups of eight made an extensive study of "Evangeline" by listening to a tape recording made by me. These groups studied together and held discussions. The same procedure was used to study the tape recorded spelling lessons. This same procedure was also used to study with teacher-made study guides: Decca's records "Abraham Lincoln," "The Man Without a Country," "Famous Poems that Tell Great Stories," and "The Heroic Soul Poems of Patriotism;" Lexington Educational Audio Visual records "American Short Stories," and "Anthology of English and American Poetry;" Folkways record "Windows for Youth."

Large group, entire class, activities included practicing enunciation, giving demonstrations and other short speeches, studying the library, and developing good listening habits. The "Anthology" accompanying Scholastic Literature Unit, Animals was also studied as a large group activity.

To overcome concern for group achievement, the third restriction, I set up three files. In another drawer of the filing cabinet was a folder for each child in the project class. In this folder each child was required to keep the following: a daily diary of material covered, tests taken, reading done, etc.; and all of the SRA materials. Each child's tests were filed and locked in my desk. An achievement sheet for each child for each six weeks was kept by me. On these sheets I recorded the average scholastic achievement, the progress and grades in English 2600, grades made on other tests, progress made in SRA work, books and stories read, remedial or review work done, and other activities, my opinions or perhaps an anecdotal record. These files were used by the teacher to check for work that should be done. They were used to arrive at subjective grades each six weeks and were instantly available for exhibiting a child's work to his parents.

The Metropolitan Achievement Tests were used to evaluate my project class. As stated previously, the Metropolitan Achievement Test Form A was given at the beginning of the school year. This same form in reading and language was given in January, and Form B was given in May. The growth of three youngsters was measured from January until May. The off scale grade level on these two tests was 10.0 +. (PLEASE NOTE ACHIEVEMENT CHARTS). In September there was one youngster off scale in language. In May there were five youngsters off scale. In September there were two youngsters off scale in reading. In May there were nine youngsters off scale. In September there was one pupil off scale in spelling. In May there were five off scale. Five pupils were off scale in word knowledge in September. Eight pupils were off scale in May. There were fourteen youngsters who had a growth of two grade levels or more in language. Seven youngsters had a growth of two grade levels or more in reading.

Student #26 was retained in the first and second grades because of a bilingual problem. In the upper grades it seemed to be a social problem with an attitude of "I can't do it." She really benefited from the project class for she knew that she was accomplishing things that she had not been able to do before. She expressed this feeling to me verbally on several occasions, expressed it by asking for remedial work, and achievement tests show a growth of two grade levels in language and 3.2 grade levels in reading.

Student #16 had a big problem for she could not resist cheating on English 2600. Toward the end of the year with a great deal of effort on her part and with discussions concerning the problem between the two of us, she conquered this weakness. Her achievement shows a growth of two grade levels in language.

Student #13 showed a definite discrepancy in the scores of her tests. They show a growth of 2.2 in language over the summer months, than a -.3 from September to May. Her score in September was 9.9 which was not accurate for she knew little about grammar or punctuation. Perhaps she was lucky in marking answers. The opposite occured in her reading scores. She fell down on the test in September which made a growth of 5.3 from September to May. This could not be accurate for her oral reading did not show this much growth.

Student #19 showed a growth of 3.3/ in language and 3.6 growth in reading. This was due, I feel, to her unusual adaptability to work as an individual and due to competition that she developed between herself and Student #14.

Students #1, #2, and #8 did an unusual amount of original work such as poetry and short stories. They also helped slower students.

When I was asked to report on my project at the WSSSP meeting at Woodlin, Colorado, I asked my youngsters to tell me honestly what they thought about the project class, the materials used, and the necessity of achieving at the eighty per cent level to continue in English 2600. Many of the youngsters did not mention their SRA work, I believe, because to them it was not all new. Twenty-two youngsters stated they liked the project class, one said he felt he liked the old way better, and two had no preference. Fourteen youngsters mentioned that they liked working at their own speed. Thirteen said they felt that they had learned more. Six mentioned the use of small steps and repetition in the English 2600 and that you could not help but learn it. Twenty-one said that they felt that expecting a grade of eighty on unit tests in English 2600 was fair. Two said that they did not like the reading material in SRA but felt that it had helped their reading. Nine said that they liked the SRA work.

I feel that I have alleviated the hum-drum for the more able students, and alleviated the pressure of the more able students on slower students. The better students have been motivated to do more work. I think perhaps half or more of the average students have learned more than students in my traditional classes of the past. Some of the slower students, I feel, have benefited and others have done no better or no worse than they would have done under the traditional method. I had several cases where indifference toward school in below average children disappeared. Competition became apparent between students that would never have existed in the traditional class. The students definitely developed a feeling of responsibility to learn rather than relying excessively on me to teach them.

My role as a teacher was completely changed. This project freed me from time-consuming class drill allowing me to devote more time to individual students' learning problems. Where I was a teacher to an English class of seventh graders and an English class of eighth graders, I became a guide for twenty-eight individual students. I had to constantly watch that no child was neglecting any phase of work or was during any day putting all the time allotted on one phase. I gave more time for preparation and planning than I have normally given to any class. The motivation felt by me through the receptive attitude of the WSSSP, my superintendent, my school board, those who heard me talk about my project class, and those who visited the class perhaps influenced the children to the extent that there was some "Hawthorne Effect," but I can see no harm in this.

I did feel that the project was weak in spelling and vocabulary. Tape recorded spelling lessons will be used extensively this coming year with those students who were in the project class last year. Those students coming into the class will use SRA Spelling Lab IIIa with tape recorded spelling lessons. I plan to use the programed material Words (SRA) for vocabulary building. Next year's project will also extend in a similar manner into my freshman English class.

If you try individualization, you must be willing to participate in an exploratory project, be willing to develop self-discipline and self-reliance in children, be willing to spend extra time in preparation and planning, yes, and eager to "free your learners to learn."

ACHIEVEMENT CHART FOR LANGUAGE

	* Avg. I.Q.	Grade	May 1962	Sept. 1962 Adv. Met. Form A	Jan. 1963 Adv. Met. Form A	May 1963 Adv. Met. Form A	Growth
1.	129	8	10.3	10.0+	10.0+	10.0+	?
2.	126	7		8.7	10.0+	10.0+	1.3+
3.	122	7	9.2	5.9	7.8	8.5	2.6
4.	114	7		6.7	8.5	9.6	2.9
5.	112	8			9.3	10.0+	.7+
6.	112	7	6.3	6.7	8.9	8.5	1.8
7.	110	7	7.3	7.3	9.7	8.2	.9
8.	109	7	6.3	5.5	7.5	8.5	3.0
9.	109	7	8.9	8.2	8.2	10.0+	1.8+
10.	109	7	7.5	6.4	7.1	8.9	2.5
11.	108	7		5.0	5.1	7.0	2.0
12.	107	7	8.3	6.7	7.0	9.6	2.9
13.	104	7	7.7	9.9	9.1	9.6	-.3
14.	103	8	7.6	8.5	9.6	9.7	1.2
15.	102	8	6.3	6.2	7.0	9.1	2.9
16.	101	8	5.8	6.2	7.8	8.2	2.0
17.	100	7	6.6	8.5	8.9	7.5	-1.0
18.	100	8			6.2	8.9	2.7
19.	98	8	7.9	6.7	9.3	10.0+	3.3+
20.	98	8	5.7	6.2	6.7	7.0	2.8
21.	98	8		6.4	8.2	7.5	1.1
22.	96	7	6.3	5.5	5.9	7.9	2.4
23.	94	8	5.7	5.5	6.2	7.0	1.5
24.	92	8	7.4	5.7	6.4	8.2	2.5
25.	90	8	7.0	6.7	7.0	7.3	.6
26.	85	8	6.2	5.0	6.7	7.0	2.0
27.	82	8	7.6	6.7	6.7	7.8	1.1
28.	77	8		6.2	6.7	8.2	2.0

*Average I.Q. of all scores recorded in our school files.

Growth determined from Sept. 1962 to May 1963

7th Grade Achievement May 1962 Intermediate Metropolitan Form A

8th Grade Achievement May 1962 Iowa Basic Skills

ACHIEVEMENT CHART FOR READING

	* Avg. I.Q.	Grade	May 1962	Sept. 1962 Adv. Met. Form A	Jan. 1963 Adv. Met. Form A	May 1963 Adv. Met. Form B	Growth
1	129	8	8.8	10.0+	10.0+	10.0+	?
2.	126	7			10.0+	10.0+	?
3.	122	7	10.0+	10.0+	10.0+	10.0+	?
4.	114	7		7.7	8.3	10.0+	2.3+
5.	112	8			9.9	10.0+	.1+
6.	112	7	8.0	6.8	8.3	7.3	.5
7.	110	7	8.4	8.7	10.0+	8.3	-.4
8.	109	7	3.8	4.4	5.7	5.5	1.1
9.	109	7	9.7	8.3	9.2	8.7	.4
10.	109	7	10.0+	9.2	10.0+	10.0+	.8+
11.	108	7		6.3	7.3	6.3	0
12.	107	7	6.8	8.3	10.0+	10.0+	1.7+
13.	104	7	7.3	4.7	8.3	10.0+	5.3+
14.	103	8	8.5	9.9	10.0+	10.0+	.1+
15.	102	8	7.0	7.1	8.5	7.7	.6
16.	101	8	7.2	5.3	6.0	6.3	1.0
17.	100	7	5.7	5.1	5.7	6.8	1.7
18.	100	8			8.0	10.0+	2.0+
19.	98	8	6.9	6.3	7.3	9.9	3.6
20.	98	8	6.8	6.8	7.1	6.6	-.2
21.	98	8			8.5	9.7	1.2
22.	96	7	5.3	6.0	4.9	7.3	1.3
23.	94	8	6.2	4.0	7.1	4.9	.9
24.	92	8	7.0	7.7	8.3	7.7	0
25.	90	8	7.4	6.0	7.3	8.5	2.5
26.	85	8	6.4	5.3	7.1	8.5	3.2
27.	82	8	5.7	5.1	5.1	6.0	.9
28.	77	8			5.3	7.7	2.4

*Average I. Q. of all scores recorded in our school files.

Growth determined from Sept. 1962 to May 1963.

7th Grade Achievement May 1962 Intermediate Metropolitan Form A

8th Grade Achievement May 1962 Iowa Basic Skills

ACHIEVEMENT CHART FOR SPELLING

	* Avg. I.Q.	Grade	May 1962	Sept. 1962 Adv. Met. Form A	May 1963 Adv. Met. Form B	Growth
1.	129	8	9.9	10.0+	10.0+	?
2.	126	7			10.0+	
3.	122	7	6.5	8.5	8.5	0
4.	114	7		8.5	9.4	.9
5.	112	8			10.0+	
6.	112	7	5.6	5.8	8.8	3.0
7.	110	7	6.7	7.3	8.2	.9
8.	109	7	7.1	6.1	8.2	2.1
9.	109	7	9.8	8.2	10.0+	1.8+
10.	109	7	6.5	6.8	8.2	1.4
11.	108	7		6.3	8.2	1.9
12.	107	7	8.4	9.7	8.5	-1.2
13.	104	7	7.3	7.3	9.4	2.1
14.	103	8	8.1	9.8	10.0+	.2+
15.	102	8	8.0	8.5	9.1	.6
16.	101	8	5.8	7.1	8.2	1.1
17.	100	7	6.7	8.5	8.5	0
18.	100	8			10.0	
19.	98	8	8.0	8.8	9.4	.6
20.	98	8	6.1	6.1	8.2	2.1
21.	98	8			8.7	
22.	96	7	5.0	4.4	6.3	1.9
23.	94	8	5.3	5.5	6.3	.8
24.	92	8	7.0	5.4	8.2	2.8
25.	90	8	6.9	6.8	7.3	.5
26.	85	8	6.7	6.8	6.8	0
27.	82	8	8.2	9.8	7.8	-2.0
28.	77	8			8.2	

*Average I. Q. of all scores recorded in our school files.

Growth determined from Sept. 1962 to May 1963.

7th Grade Achievement May 1962 Intermediate Metropolitan Form A

8th Grade Achievement May 1962 Iowa Basic Skills

ACHIEVEMENT CHART FOR WORD KNOWLEDGE

	* Avg. I.Q.	Grade	May 1962	Sept. 1962 Adv. Met. Form A	May 1963 Adv. Met. Form B	Growth
1.	129	8	9.1	10.0+	10.0+	?
2.	126	7			10.0+	
3.	122	7	10.0+	10.0+	9.9	-.1
4.	114	7		7.8	9.1	1.3
5.	112	8			10.0+	
6.	112	7	5.6	6.4	9.1	2.7
7.	110	7	8.7	7.4	9.5	2.1
8.	109	7	4.9	5.6	4.5	-1.1
9.	109	7	10.0+	10.0+	10.0+	?
10.	109	7	9.2	10.0+	10.0+	?
11.	108	7		6.0	6.4	.4
12.	107	7	8.7	8.1	10.0+	1.9+
13.	104	7	7.1	9.1	9.1	0
14.	103	8	8.2	10.0+	10.0+	?
15.	102	8	6.7	7.4	8.1	.7
16.	101	8	6.2	6.7	7.8	1.1
17.	100	7	6.6	6.1	6.1	0
18.	100	8			10.0+	
19.	98	8	7.8	6.7	8.3	1.6
20.	98	8	6.3	5.6	7.0	1.4
21.	98	8			7.8	
22.	96	7	4.7	4.1	6.7	2.6
23.	94	8	7.2	4.7	6.1	1.4
24.	92	8	7.3	5.6	8.1	2.5
25.	90	8	7.0	7.4	7.8	.4
26.	85	8	5.6	5.3	7.0	1.7
27.	82	8	5.8	5.2	6.4	1.2
28.	77	8			7.0	

*Average I.Q. of all scores recorded in our school files.

Growth determined from Sept. 1962 to May 1963.

7th Grade Achievement May 1962 Intermediate Metropolitan Form A

8th Grade Achievement May 1962 Iowa Basic Skills

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COLORADO WESTERN STATES SMALL SCHOOLS PROJECT

DOCUMENTATION

INDIVIDUALIZED INSTRUCTION
FRESHMAN MATHEMATICS
Ann Brgoch
LaVeta High School

COLO. STATE DEPT. OF
EDUCATION · DENVER
BYRON W. HANSFORD
COMMISSIONER

BACKGROUND

When I began my teaching career in the LaVeta Schools ten years ago, I was amazed at the lack of mathematical understanding in the students. LaVeta, located in a beautiful little valley along the Sangre de Cristo Range, is a small community of about one thousand people. There are no industries or anything else located here that would require a mathematical vocabulary to any great extent. The principle industry is cattle raising.

I soon realized that in this very fast-changing world of ours, our students could not hope to compete with students from large schools in the mathematical field. I talked to several of my former mathematics students who had gone to college to see if I had given them a mathematical background that enabled them to progress along with their fellow students from larger schools. Most of these former students were above average in mathematics but felt that they had been handicapped by the limitations placed on them in high school by the slower students.

While attending the Western States Small Schools Project Workshop at Greeley, I began to realize that individualization, aided by the use of programed materials, could help to alleviate this situation to some extent.

Providing for children of varying abilities in mathematics was a problem that I had to cope with in order to get maximum results from my freshman students. Due to a limited faculty and a small student body, problems arose in scheduling classes. This made it necessary to require Algebra I of all freshmen. Many of the students found Algebra very difficult and frustrating while others could grasp it easily and thought it was fun. My teaching had to be geared to the average. I discovered that the good students became bored while the slower ones were finding it difficult to keep up.

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SUMMARY OF RELATED RESEARCH

More and more educators are evaluating curriculum programs to ascertain what can be done to meet the academic needs of pupils whose differences vary according to abilities and interests. One of the greatest problems has been in the field of mathematics because it is one of the fastest growing and most rapidly changing of the sciences. Many teachers and parents are aware that the standard eighth grade mathematics offers little challenge to the academically talented youngster. Some schools offer enrichment programs which most of the students feel is just "extra" work and frequently called "extra work". These students become bored and develop poor study habits.

In Memphis, Tennessee, the students with very low grades were advised not to take Algebra. However, if a student insisted on enrolling in Algebra, even after being advised otherwise, he was permitted to do so. In the study, efforts were made to determine the relationship between success in Algebra and four variable factors: intelligence, achievement in mathematics test scores, eighth grade composite grades, and eighth grade mathematics grades.

For the purpose of this study, one hundred and fifty ninth grade algebra students were chosen from three different schools (fifty from each school). These students were arbitrarily selected from different sections in each school so as to include students who took Algebra at different periods during the day. Due to location and character of the enrollment in the three schools involved, this sample would seem to be a good cross section of ninth grade enrollment in algebra.

No attention was paid to the various teaching techniques used nor to the various social and psychological factors that might have influenced student progress. Half of the students selected were girls and half were boys.

Four independent variable factors were selected as criteria that might be used for selecting students for ninth grade Algebra and for predicting within crucial limits their mastery of the subject. They were (1) I.Q., (2) Achievement Tests, (3) Eighth Grade Composite Grades, and (4) Eighth Grade Mathematics Grades. The I.Q.'s ranged from 75 to 128. Final grades in eighth grade arithmetic ranged from 1 to 4 assuming that A=4, B=3, C=2, D=1, and F=0.

Conclusions were that eighth grade mathematics grades were found to be a better basis for prognosis that I.Q., Achievement Test Scores, or eighth grade composite averages. Scores obtained from the averages made on the arithmetic sections of the Stanford Achievement Tests correlated relatively high with achievement in Algebra. From this study, a combination of eighth grade mathematics grades and achievement test scores on the arithmetic section would appear to be a reliable predictor of achievement in Algebra.

OBJECTIVES

Individualization became one of the most fundamental concepts of my entire project. My main objective was to free the gifted students from the limitations placed upon them in a traditional classroom. By doing this, the gifted students could take five or six courses of mathematics in four years. The average college bound students could take four courses, and the others could gain enough practical mathematics to handle most ordinary situations which arise.

I felt this project could broaden the curriculum and enhance the program of our school. I attempted to develop better individual study habits in the students, placing emphasis on retention of skills rather than on covering large quantities of subject matter.

The use of programed material should allow the students to progress at their own rate and provide an opportunity for the integration of traditional and modern mathematics.

TECHNIQUES, METHODS, AND MATERIALS

I began this project by first charting the mathematics aptitude test grades, I.Q. scores, and comments of the junior high school mathematics teacher for each student entering the ninth grade. The I.Q. scores for this particular class ranged from 88 to 126. The average I.Q. was 111.

During the summer planning session, I pondered over the above and decided to divide the class into two groups. The college bound students would be placed in the S.R.A. MODERN MATHEMATICS and the non-collegiate, slower students in General Mathematics. The S.R.A. was to be programed, and the General Mathematics was to be taught in the traditional method.

The S.R.A. MODERN MATHEMATICS consists of ten books using the modern approach to high school mathematics. The principle of programed instruction is to allow a student to learn more effectively as he moves through the material in a logical sequence of small, easy-to-take steps. At each step he is asked a question on what he has learned, and he can immediately find out whether his answer is correct. A student is constantly aware of whether or not he is proceeding correctly. This helps to minimize misconceptions that can lead to poor mathematical thinking. Traditionally, when a textbook assignment is given, the student must wait some time before he finds out whether he is performing his work correctly. Many times there is a delay of many days before class time can be found to discuss homework. With programed material, the above problem is lessened since the student checks his work as he does it. Special answer booklets come with the programed textbook. I check these to see that the student has completed the work and note the percentage of errors made. These answer booklets are never graded.

Late in August, eighteen freshmen registered for freshman mathematics. The first week was spent lecturing and demonstrating the plan to be used during the year. It was difficult at first for the students to understand what was meant by a programed course as they had never seen one. The second week of school, I divided the students into their respective groups. I had twelve students in S.R.A. MODERN MATHEMATICS and six students in General Mathematics. I taught these two subjects during the same period.

In a week, I realized that I did not have two classes but eighteen individual classes. Each student was in a different place in the programmed materials, and the progress in the traditional class was much the same.

This combined class met four days a week. The length of each period was seventy minutes. The progress slip that each student handed in at the end of the period contained the following information:

Date ____________________
A. Frame number at the beginning of the period ____________
B. Frame number at the end of the period ______________
C. Frames completed (B-A) ______________________________
Test Grade ________________________________
Comments __________________________________
Signature ____________________

This small chore on the part of each student freed me from doing any record keeping during this mathematics period. Since tests were given to the student as he was ready for them, I saved a considerable amount of time which I could use to help the other students and the General Mathematics students.

When a student had difficulty on any problem, he wrote a comment. I checked these report slips, noting which students were having trouble. When several students were having difficulty with the same principle, I met with them on the following day and reviewed the principles again in a traditional classroom method. If only one student was having trouble, I took time to go over the material with him individually.

Upon completion of each chapter, the student took a test. Each student had to receive a grade comparable to his abilities in mathematical achievement before he was allowed to proceed. These abilities were determined by I.Q. scores, mathematics achievement test grades in the past, and scores in quantitative thinking. In some cases the percentile was as low as 70 and in others as high as 90. These tests were graded immediately with the pupil present so if he failed the test I could review all the material individually with him before he was allowed to take another test over the same material. Some students never had to repeat a test. This indicated to me that these students were striving for accuracy and studied as they wrote the answers. One of the difficulties I first noticed was most of the answers to the questions seemed so simple and so logical that the student put the answers down without thinking. When these students took the test they did poorly on it. As they progressed, they soon realized that studying the chapter before they took a test was important.

When there seemed to be diminishing returns from programed material, I supplemented the work with assignments or reference material from the textbook MODERN ALGEBRA. This gave the student a good basis on which to proceed.

Throughout the year, I felt the need for supplementary materials. It was very difficult to find many sources of materials available in modern mathematics. As they became available, our superintendent purchased them so that by the end of the year, I had a good supply for students to refer to when problems arose.

The six students in general mathematics worked on a daily assignment plan. At the beginning of the year, I thought each student could proceed at his own pace, but I discovered that a textbook cannot be used as a programed textbook. The textbook needs the teacher to explain new methods and problems to the student. However, each student was free to progress as fast as he was capable. Since this was a slower group, there was not so great a span in progress as in the modern mathematics class.

EVALUATING PROGRESS

In order to assist in evaluating the progress of the students in my class, I used the following facts:

1. Students were competing with themselves
2. Daily work was not graded
3. Test grades were the only recorded grades

Because of the above facts, my grading was all very subjective. I used the test grades and my judgment as to what each student had accomplished with his ability to achieve to determine his grade for the six weeks.

At the end of the year I found three students had completed the ten books, five were on Book Six, two were on Book Eight, and one was on Book Ten. The three students who had completed the ten books were given a final examination which covered the entire course. Their average score of 88 percent indicated above average learning and retention of subject matter.

At the end of the year, each of the students received one credit in freshmen mathematics although some of these students may take three years to finish the course. They will receive a credit each year, but when they transfer to a college, they will receive only one mathematics credit for this particular course.

When school begins in the fall, these students will pick up where they left off the previous year. The three students that have finished the ten books will begin geometry and Algebra II. The others will complete the freshman mathematics. As the other students complete the course, they will begin geometry.

With the limited experience I have had with programming, I believe that it reaches more students than the traditional method. In my class the top students have progressed far beyond where they would have if they were in a regular class situation. The average are where they would have been in a regular classroom, but they have developed more self-reliance and have learned some of the modern mathematical thinking concepts. My general mathematics students will be better prepared to take Algebra I next year than they would have been at the beginning of their freshman year.

STUDENT AND TEACHER REACTION

The enthusiasm of this group was outstanding. They adjusted to the programming easier than I did and seemed to enjoy it because they could budget their own time. Friction among the students did not occur because of the differences in advancement. Instead, the better students were helping the slower students and were trying to make them understand which is far better than the usual copying which goes on in a traditional classroom.

Difficulty in the tests seemed to be the biggest complaint from the students. They felt that the approaches needed in the tests were much more difficult than those used while completing the chapter. Toward the middle of the year they found that thinking, concentration, and study were just as important in programmed materials as in textbooks.

After teaching for many years, this was a very frustrating experience and indeed a lot of work to have eighteen students demanding my attention for seventy minutes. Classroom management problems were somewhat magnified. It was more difficult to discipline a class with eighteen groups. Perhaps the only thing involved was my own security which was offset by the purposeful activity of the students.

This has certainly been a real learning experience for me. It has made me question my personal philosophy of teaching and revise it to a certain extent, especially with regards to individual differences.

There is a great deal more work in evaluation of students, individual help, and planning. However, personal satisfaction and improved student achievement all compensate for the above.

Although I was pleased with the results of my project, I can see where it can be improved in several ways. First, I intend to do more testing, as this data will be helpful in determining growth of the student. These tests will be given at the beginning of the year, at the end of the first semester, and again at the end of the year. Second, I plan to counsel individually with each student, helping him set up goals by actually showing him what degree of success he can attain. If I had done this last year, I feel that several students would have progressed further than they did. Finally, I will use filmstrips and films to aid the student in better understanding of certain mathematical principles.

The modern trend of reorganizing seems to indicate there is no longer a need for the existence of small high schools, but they cannot be eliminated entirely. If we are to fulfill our obligation as teachers, we must instruct these students as well as, if not better than, students are instructed in the larger schools.

COLORADO WESTERN STATES SMALL SCHOOLS PROJECT

DOCUMENTATION

INDIVIDUALIZING THE TEACHING
OF LYRIC POETRY
Charles Jaquette
Meeker High School

COLO. STATE DEPT. OF
EDUCATION · DENVER
BYRON W. HANSFORD
COMMISSIONER

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I. TITLE

A plan for the individualization of the teaching of lyric poetry in grades nine and ten through the use of a teacher-prepared sequential program.

II. PERTINENT INFORMATION

This experiment was performed with a heterogeneous population consisting of approximately one-third (21) of the tenth graders at Meeker High School, Meeker, Colorado.

The experiment was conducted by Charles Jaquette, English Instructor, and lasted four weeks.

III. REASONS FOR THE RESEARCH ACTIVITY

This plan was proposed in recognition of the problem of providing for individual differences in the lock-step, English I, II, III, and IV programs which are now prevalent in most high school systems.

It was felt that such programs fail to make at least the following considerations:

1. The interests and abilities of the students in any group vary as widely as the number of students in the group.

2. The lyric poetry available to the literature teacher varies widely enough in type and difficulty to interest and/or challenge nearly all students.

3. Poetry presented in the traditional way must represent only a fraction of the available poetry and must appeal to only a fraction of the students to whom it is presented.

In summary it is felt that the bright student is presently discouraged from studying poetry he is capable of studying, while at the same time, slower students may be frustrated by class work and developing negative attitudes.

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The problem of reaching all students becomes more acute in the small high school where specialized courses are impossible to offer, and still more acute in high schools such as Meeker High School where English classes are entirely heterogeneous.

IV. PROCEDURE

The experimental poetry program, as developed, consisted of two main parts: (a) a core series of twenty-four poetry discussions and (b) activities branching from the core discussions.

The core discussions consisted of the following:

1. A series of teacher-prepared, three-inch tape recordings discussing twenty-four lyric poems. The poetry ranged in difficulty from James Whitcomb Riley to Ezra Pound and Wallace Stevens.

2. The twenty-four tapes could be divided roughly into four units of poetry study: (a) the impression or mood in poetry (b) rhyme and meter (c) the poetic devices, all lumped under metaphor and onomatopoeia (d) the idea or philosophy in poetry.

3. Each tape included, in general, at least one reading of the poem, a discussion of the poem, a quiz (not marked), and suggestions for branching activities.

These branching activities were important to the workings of the program because they were the means by which a student made a deeper study of that poetry consistent with his interests and abilities. Branching activities included the following:

1. Choice of activities varying in difficulty from the simple memorization of a poem, to a critical discussion (oral, written, or taped), to specialization in reading a single author, or actually anything the student elected to do consistent with the general intentions of the program.

2. The use of certain poetry materials: (a) approximately two dozen disc recordings including poetry discussed on the core discussions and lyric and narrative poetry not discussed on the core tapes; (b) approximately fifty books including traditional high school anthologies, other anthologies, and collections; both hard bound and paperbacks were included. (c) other reading matter such as encyclopedia articles, critical essays by poets, critical essays about poets, and books owned by the students.

The entire program, core discussions and branching activities, was designed to be self-teaching, other than individual conferences and tests.

The students in the program were chosen at random. That is, each student in the sophomore class was given a number and twenty-one numbers were drawn from a hat. Each of the twenty-one students was then given a code number for the experiment. The abilities of the twenty-one students, as indicated by their marks at the end of the first semester of the 1962-63 school year, ranged from "D" to "A."

Each student was given a master sheet listing all the core discussions and summaries of the branching activities. He and the teacher then worked out which of the discussions he would hear. Faster students would study different poetry than slower students.

Each student was to proceed at his own rate vertically through the twenty-four discussions and also do the branching activities consistent with ability and interest.

Each tape had an accompanying test (to be marked) and each Friday the students would take tests over the tapes which they had completed during the week. The student had the option of choosing which tests, if any, he would take.

Equipment necessary for the experiment was one tape recorder for each student and a couple of record players. The twenty-one students came out of three sections of English II: four from one section, seven from one, and ten from another; so to provide the maximum number of ten recorders, the language lab was used with its five tape decks and console.

Actually it wouldn't be necessary to have one tape recorder per student if class time were organized so that one-half the students used the tape recorders while the other half worked on branching activities and then traded. It might even be possible, using this method, to get by with even fewer recorders.

The daily procedure for the experimental students consisted of reporting to class for roll call and picking up what taped discussions they were going to listen to that day. When the regular lecture began, they then reported to the language lab. After listening to the tapes, the students went to the library or returned to the English room to report on branching activities or to pick up materials to study for further branching activities.

Friday the students would stay in the English room to take the tests they chose and spend the rest of the period in free reading.

V. RESULTS

The degree to which a student is able to understand and enjoy poetry is difficult to measure except in a highly subjective manner. Some results, both negative and positive, can be described, however. The following are negative results:

1. Branching activities were not done with the expected thoroughness or enthusiasm. Some students (see TABLE I) did no branching activities whatever. Even those who did several of them did rather cursory jobs for the most part.

2. Not enough time was spent in individual conference. It was

impossible to confer with students while lectures were being carried on in the traditional classroom, and the time remaining wasn't sufficient to do a thorough job of individual consultation.

3. On a test given to all students in the sophomore class including both experimental and control groups (see APPENDIX A), the performance of the experimental group, subjectively gauged, was perceptibly lower.

TABLE I

BRANCHING ACTIVITY MARKS

Ave	Student	Marks (1st two weeks)	Marks (2nd two weeks)
D	1	1 1 2*	2 2
C	2	3 3 3 3	
C	3		
C	4	3 1 2	
B	5	3 3 3 2 1 1 1 2 1 2 3 3 1 1 3	3 2 3 2
B	6	1 2 3 1 3 1 5 2 1 1 5 1 2 3	5 1 3 4 5
A	7	3 3 3 3	2 2 4
C	8	2	
B	9		
A	10	2	2
B	11	2 2 2 1 1 2 1 3 2 2 3 4 3 3 1 1 3 3	5 1 2 4 3
B	12	3 3 3 3 3 2 1 4 4 3 3 1	
C	13		2 2 1 2 3 2 1
C	14	2 3 1 3 3	2 2 1 2 3 2 1
B	15	4 3	1 3 1
D	16		
D	17	2 3 1	
D	18		1 2 2 3 1
C	19	3 1 1 3 4 4 3 1	1
C	20	2 1 1	
D	21	1 2 3 2 1 1 3 4	1 2 2 3

* 5 is the highest mark or credit given per activity.

The following are construed as positive results:

1. The students performed well on the core tapes themselves, on the unmarked quizzes, which were a part of the tapes discussions, and also on the graded quizzes at the end of the week (see TABLE II).

2. Almost all students kept working on the tapes for the full four week period, even though the number of tapes per week had a tendency to decrease week by week. The highest number of discussions studied was 20; the lowest number done by any student was 10 (see TABLE II).

3. At least two students, numbers 5 and 6, did go deeply into the branching activities. Student 5 became interested in T. W. Eliot and made a fairly detailed study of his work and student 6 did the same with Walt Whitman.

TABLE II
WEEKLY TEST SCORES

Ave	Student	1st week	2nd week	3rd week	4th week
D	1	1 2 1 1 4*	1 1 4 2	1 5 4	3 3
C	2	5 4 5 1 2 3	4 3 4	5 5 4 3	2 4 2
C	3	1 5 2 5 5 1 3	2 2 2 1 5 2	5 5 5 1	1 5 3
C	4	5 5 1 5	4 1 3 1	4 5 4 5	5 3
B	5	4 5 5 5 5 5 5	5 5 5 5	5 5 5 5	5 5 5
B	6	5 5 5 5 5 5 4	5 5 5 5 5 4	5 5 5 5 5	5
A	7	3 5 5 5 5	4 5 4 5	5 5 5	5 5
C	8	5 4 2 5 5	4 5 3	4 4 5	4 5 5
B	9	2 5 5 5	4 5 5 5 2 4	5 4	
A	10	4 5 3 5 5	5 5 4	5 5	5
B	11	5 4 4 5 3 5	3 5 5 5 5 4 5	5 3 5 5 4	5
B	12	3 5 5 1 2 5 2	5 4 5 5	5 5 5 5	5
C	13	5 3 3 5 5	2 4	5 3	5
C	14	2 4 5 4	5 4	5 4	3 5
B	15	2 3 3 5 5 5 5 5	5 5 5	5 4 5	
D	16	5 2 4 5 5	4 5 4	4 5 5	
D	17	3 3 1 2 1	5 1 1	3 4 2 1 4	3 3
D	18	4 4 4 5	5 5 1	2 4 2	
C	19	5 2 5 5 1	5 5 5 5	5	5 5
C	20	1 2 2 2 4	4 5 1	5 5 5 1 2	
D	21	1 5 1 5 5	4 2 5	3 2 1 5 5	5

* 5 is the highest mark or credit given on weekly tests.

4. At the termination of the experiment, when given a choice of homework, several of the experimental group elected to continue with the tapes as their homework.

5. The students' behavior, subjectively assessed, in the independent study atmosphere was gratifying.

6. Slight, if any, negative reactions toward the program activities were observed.

7. Some students were overtly enthusiastic about the program activities.

8. Some students seemed to become more aware of the existence of

poetry outside the classroom: books at home, library resources, paperbacks, etc.

VI. IMPROVEMENT RESULTING FROM RESEARCH

When plans were originally drawn for this research, the statement of expected improvement read as follows:

> It is anticipated that:
>
> A. The able and ambitious student will progress farther under the proposed plan than he normally would under conventional programs.
>
> B. The slower student will be more thoroughly grounded in necessary skills and subject matter than he normally would under conventional programs.

A glance at TABLE III, showing the student grade averages and the number of tapes listened to as well as the number of branching activities done, will indicate that student improvement in terms of the original statement may be expressed as follows:

1. There is no indication that better students were inclined to listen to more taped discussions than poorer students.

2. There is scant indication that better students were inclined to do more branching activities than poorer students.

3. There is no indication that those who did more taped discussions were inclined to do more branching activities.

4. The anticipated patterns of student performance in the poetry program failed to emerge.

Although the anticipated patterns of student performance in this research never became a reality, the results should be far from discouraging for the following reasons:

1. The student's previous grade average may not reflect his ability to deal with or enjoy poetry, or, indeed, to do anything.

2. Quantitative data such as the number of tapes or branching

activities done may not reflect the degree to which the objectives of the research were accomplished.

3. Regardless of how a student's performance compared with his previous record, it might have compared favorable with his performance in poetry outside the experiment.

TABLE III

GRADE AVERAGES AND AMOUNTS OF WORK DONE

Student	Grade Average	No. of Tapes	No. of Br. Activities
7	A	14	7
10	A	11	2
5	B	18	19
6	B	19	19
9	B	12	0
11	B	19	23
12	B	16	12
15	B	14	5
2	C	16	4
3	C	20	0
4	C	14	3
8	C	14	1
13	C	10	8
14	C	10	12
19	C	12	9
20	C	13	3
1	D	14	5
16	D	11	0
17	D	15	3
18	D	10	5
21	D	14	12

4. By disregarding the student's past performance and not conjecturing about what he may have done outside the experiment, the following, not unfavorable, conclusions may be stated: (a) students, by their own choice, heard between ten and twenty poems discussed during a four week period. (b) students did, by their own choice, from 0 to 23 branching activities ranging from simple memorizations to fairly perceptive taped discussions.

In short, to anyone examining the experiment, "amount of improvement" becomes a rather elusive quantity, and he is forced to make highly subjective judgments about student performance. These have already been discussed under RESULTS.

Demonstrating the possibilities for teaching improvement may well be the chief value of this experiment. It may be feasible, for instance, to extend this same technique to other areas of English study such as punctuation, composition, or other areas of literature.

If this can be done, then the English program becomes entirely individualized. If a student has trouble with commas, he should study commas through self-teaching devices; if he doesn't, why bother him at all with them.

If a classroom were organized along these lines, the problem of trying to group homogeneously (impossible to do in the first place) would become non-existent, and the slow and the fast, the freshman and the senior could all work in the same room at the same time.

Actually this change isn't very dramatic. It would simply make practices already in effect easier. What English teacher doesn't have a senior student who has trouble with possessives? Or a freshman capable of reading T. S. Eliot? Or a sophomore capable of writing publishable editorials? Or a junior reading at seventh grade level? These students are all being dealt with right now, but the structure of the English classes tends to add to, rather than relieve, the frustration of seeing seniors with the same problems as freshmen.

As a result of this experiment, this type of class organization, or dis-organization, will go into partial effect at Meeker High School during the 1963-64 school year. Freshmen and sophomores will be integrated into common classes. Four sections of English will be offered and any freshman or sophomore will sign up for whichever section fits his schedule.

VII. RECOMMENDATIONS

To individualize completely the teaching of English in the manner described means that almost every part of the English course should be on taped discussions or contained by some other type of self-teaching device. Obviously this is a tremendous task and will require some kind of concerted effort.

It is recommended that interested English teachers pool their efforts and try to work out different parts of the program and share with each other.

APPENDIX A, FINAL TEST GIVEN TO ALL SOPHOMORE STUDENTS

I. Define poetry.

II. List techniques you think help the individual person better understand and enjoy poetry.

III. Discuss the following poem:

> And like a dying lady, lean and pale,
> Who totters forth, wrapped in a gauzy veil,
> Out of her chamber, led by the insane
> The feeble wanderings of her fading brain,
> The moon arose up in the murky East
> A white and shapeless mass.

APPENDIX B, MASTER LIST OF DISCUSSIONS AND BRANCHING ACTIVITY SUMMARIES

UNIT I - THE IMPRESSION

Branching Activities	Core Tape	Branching Activities
My November Guest - Frost Rainy Day - Longfellow Read Printed Version	When Frost Is on the Punkin --James Riley	Other autumn poems Others by Riley
Stopping by Woods - Frost	When Icicles Hang by the Wall - Shakespeare	Shakespeare Songs (Recording)
Dover Beach - Arnold Mandalay - Kipling A Grey Day - William Vaughn Moody	Sea-Fever - John Masefield	Others by Masefield Sea Poems or stories
Memorize The Eagle The Lotus Eaters - Tennyson Enoch Arden - Tennyson Lady of Shallott - Tennyson Fog - Sandburg The Waning Moon - Shelley	The Eagle - Tennyson	
	Winter Sleep - Elinor Wylie	Listen to recordings

APPENDIX B, (Continued)

UNIT II - RHYME AND METER

Branching Activities	Core Tapes	Branching Activities
Define internal rhyme Another Longfellow poem	The Tide Rises, the Tide Falls - Longfellow	Study forms of poetry (Recording)
Define slant and true rhyme Meaning of Rub 71 Shakespeare sonnet for rhyme Study rhyme in another Rubaiyat	Rubaiyat 71 - Omar Khayyam	
Discuss this poem with a classmate Write verse for meter Write quatrain for rhyme	O Captain, My Captain - Walt Whitman	Compare this with other poems of Whitman
Another Poe poem Study "Raven" for rhyme and meter Examine each 4th line for rhyme peculiarity	Eldorado - Edgar Allen Poe	
Examine 2nd stanza for internal rhyme	A Noiseless, Patient Spider - Walt Whitman	Other Whitman poems

APPENDIX B, (Continued)

UNIT III - POETIC DEVICES

Branching Activities	Core Tapes	Branching Activities
Memorize "Fog" Find examples of metaphor	Fog - Sandburg	Others by Sandburg
Read for metaphor	When You and I Behind the Veil Are Past - Omar Khayyam	
	Chicago - Sandburg	Discuss onomatopoeia with classmates
Write a verse Record "Bells" Read printed "Bells"	Bells - Poe	
Read printed version Write a sonnet	Sonnet 73 - Shakespeare	Other Shakespeare sonnets

APPENDIX B, (Continued)

UNIT IV - THE IDEA

Branching Activities	Core Tapes	Branching Activities
4 Preludes on Play-things of the Wind - Sandburg Ozymandias - Shelley Memorize some of the Rubaiyat	Rubaiyat 16 - Omar Khayyam	Read other Rubaiyat
Record "Miniver Cheevy" Read "Richard Cory"	Miniver Cheevy - Edwin Arlington Robinson	Others by Robinson
Tape a discussion with a classmate Record a Frost poem Read another Frost poem	Stopping by Woods - Frost	
Tape a discussion of "Dover Beach" with a classmate	Dover Beach - Arnold	
Meaning of 2nd stanza Meaning of last stanza	The Auto Wreck - Karl Shapiro	Others by Shapiro
	The Hollow Men - T. S. Eliot	
	The Lion Roars at the Enraging Desert - Wallace Stevens	
	The Congo - Vachel Lindsay	
	Lament of the Frontier Guard - Ezra Pound	

APPENDIX C, EXAMPLE OF POETRY DISCUSSION

We found in the previous two discussions that metaphor was a poetic device used to compare two concepts to make one or both concepts clearer in the mind of the reader.

This was the first of two techniques of making poetry effective that we said we would discuss. We are now ready to begin our discussions of the second of these techniques, or devices. This device has the formidable technique name of onomatopoeia. This word is spelled, for your notes, o-n-o-m-a-t-o-p-o-e-i-a. Onomatopoeia. Pronounce the word after me. Onomatopoeia. Good! Now just what is it?

Onomatopoeia is using words whose letters sound like the sound the word expresses with its meaning. Perhaps the simplest example of such a word would be a word like "thud." The meaning of the word "thud" pertains to a certain sound--a thudding sound. Notice that the sounds of the very letters in the word "thud" also sound much like this same sound. Thud.

We have already had some experience with this device when we studied "When Frost Is on the Punkin'" by James Whitcomb Riley. Remember he spoke of the "husky, rusty, russel of the tossels of the corn, And the raspin' of the tangled leaves." We mentioned at that time that the sounds of these letters actually suggested the sound of dried corn leaves. These sounds of letters suggesting the rustling of corn were an example of onomatopoeia.

This, of course, is a quite obvious example of this device. Some uses of sounds of letters to suggest meaning are more subtle. In this discussion of Carl Sandburg's "Chicago" you will be able to hear such examples, I think. I would suggest the following method for beginners in learning to observe and enjoy onomatopoeia.

APPENDIX C, (Continued)

First of all, listen for the meaning of the poem. Try to feel the mood or tone of the poem as the meanings of the words sink into your mind and begin to form an image. Then try to pick out the letter sounds which seem to be consistent with this general meaning and tone.

For example, the poem, "Chicago," by Sandburg is, naturally enough, about the city of Chicago. As we've suggested before, poems need not always deal with the pretty, pleasant aspects of life. I'm sure you'll find that "Chicago" isn't pleasant or pretty as far as its mood goes. It's about a growing, lively, tough city. Sandburg suggests this mood when he describes the city as being "bareheaded, shoveling, wrecking, planning, building, breaking, rebuilding." These words seem to suggest the process of construction--the pounding and crashing of industry.

Well, let's see if you can pick out other examples of onomatopoeia as we read "Chicago" by Carl Sandburg.

READING OF THE POEM

There is the picture of a raw, tough, untamed, rather uncivilized c[illegible]. It's a hog butcher; it's like a dog ready for a fight; like a fighter or a worker. These phrases suggest the meaning of the poem.

How would you define the mood? Does it sound reckless, carefree, independent, strong, brutal? I think so.

Now let's get to the subject of our discussion. What are the letter sounds which in and of themselves suggest these moods and meanings apart from the meanings of the words they happen to be in? Did you jot some of these letter sounds down? If you did not, as we go through the poem the second time, try to note some of these examples of onomatopoeia.

SECOND READING OF THE POEM.

Did you notice the repeated use of the "B" sound? I think that Sandburg felt that the letter "B" was suggestive of "stormy, husky, brawling" or "city of the big shoulders" or "hog butcher." Did you note any of these? There are others, of course, and you may have jotted them down instead of the ones I picked.

But in any case I think we could summarize by saying that here is a poem about a rough, uncouth, wild city, and the letters of the words Sandburg has used are also rough and uncouth. This is the use of onomatopoeia.

For your special study activities (branching activities) try some of the following:

1. Find other poems by Sandburg and look for examples of onomatopoeia. He is a modern writer and his poems concern modern themes. What will this suggest to you about what sort of letter sounds you are likely to find? Discuss these examples you find with your teacher.

2. Letter sounds are technically classified into different groups according to where they are found in the word, and what letter of the alphabet is involved. Each of these types has a technical name. Find examples of the following and show them to your teacher: Sibilance, alliteration, assonance, consonance, cacophony, euphony.

3. Compare notes on "Chicago" with a classmate and see if he picked the same examples of onomatopoeia as you did.

Now let's take a quiz over "Chicago" and see how much you learned about the poetic device we call onomatopoeia. Number your paper from one to five.

1. While our discussion this time didn't directly concern the use of metaphor, there were a couple of examples in this poem. In

"Chicago" Sandburg compared the city of Chicago with a ____________.

2. Using the sounds of letters to suggest the meaning of the words in which the letters are placed is the poetic device called ________ .

3. Sandburg knew Chicago was brutal because he saw on the faces of women and children the marks of ______________.

4. Is Sandburg proud or ashamed of the city of Chicago?

5. Do you feel the sounds of the words in the poem "Chicago" are harsh or gentle?

Since we only read this poem twice, you may feel you should go over it by yourself a couple of times before Friday's quiz. Discuss it with your classmates.

This concludes the discussion of "Chicago" by Carl Sandburg.

APPENDIX D, WEEKLY GRADED QUIZ OVER DISCUSSION OF "CHICAGO"

1. Discuss the use of onomatopoeia in the following selection from Sandburg's "Chicago."

> Laughing the stormy, husky, brawling laughter of youth; half
> naked, sweating, proud to be Hog-butcher, Tool-maker,
> Stacker of Wheat, Player with Railroads, and Freight-handler of the Nation.

2. Discuss the metaphors which give "Chicago" its meaning and mood, if necessary, get a copy of the poem from your teacher

3. Comment on the rhythm in "Chicago."

COLORADO WESTERN STATES SMALL SCHOOLS PROJECT

DOCUMENTATION

TELEPHONE METHOD OF TEACHING
Thomas Beattie - Paul Frick
Telluride High School

COLO. STATE DEPT. OF
EDUCATION · DENVER
BYRON W. HANSFORD
COMMISSIONER

THE TELEPHONE METHOD OF TEACHING

By

THOMAS A. BEATTIE
Paul S. Frick

During the months of April and May, 1963, a project utilizing the Long distance telephone as a teaching device was conducted in selected small high schools in Western Colorado. The purpose of this project was to test the feasibility of using the long distance telephone to bring outstanding teachers to the typical high school classroom. Also of import, was the testing of several new telephone devices designed to improve the transmitting of the human voice to groups of listners. This project was conducted with funds, equipment and technical assistance contributed by the Western States Small Schools Project and the Mountain States Telephone and Telegraph Company.[1]

General Plan

The general plan for this project was to demonstrate that several schools located in widely separated and isolated sections of Western Colorado could be connected to a central point to permit the conducting of a class in all the locations simultaneously. Utilizing the conference telephone facilities of the Mountain States Telephone Company, high schools located in Rangely, Meeker, Colbran, Silverton and Telluride, Colorado were connected to Gunnison, Colorado.[2] At Gunnison, interested professors at Western State College were to cooperate to provide the instruction to the schools.

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[1] For initial budget see Addendum I

[2] For location and distance map see Addendum II

p.132 blank

Lecture Procedure

At a meeting held on the campus of Western State College in Gunnison, plans for the series of lectures were formulated. The participating teachers, administrators and the cooperating professors decided that the presentations might serve best if they were designed to provide motivational interest to the students who would be participating.[3] It was felt that motivation could be stimulated in the students because of the novelty of the arrangement. The ego satisfaction generated by their involvement with a college professor and by the nature of the material presented in the lectures. The possibilities of the two-way communication which the telephone permitted were discussed and the group favored the inclusion of a student question period with the lecturing professor.

At this meeting, several plans were considered for the presentation of the lectures. These plans were as follows:

1. A thirty-minute lecture followed by a ten-minute question formulating period which would be followed by a twenty-minute question period.
2. A thirty-minute lecture followed by a thirty-minute question period on the day following.
3. A thirty-minute lecture followed by a one hour break to formulate questions. After the one hour break, the schools would then be reconnected to Gunnison to ask the questions.
4. A thirty-minute lecture with each school making its own arrangements to go back to the professor with questions.

The first of these plans was attempted with the first lecture. These findings were determined as a result of the first lecture:

1. Participating teachers did not feel that a ten minute question

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[3] See Addendum III for names

formulating period provided sufficient time for the students to come up with meaningful questions. These reasons were given by the participating teachers:

a. A certain amount of hiatus prevails after hearing a stimulating lecture. It was felt that a period of time was required for the students to "shift gears" from the listening process to the question formulating process. A ten-minute period was too short for the entire process.

b. Since all schools participating had not followed the same sequence in reaching the areas to be covered in the lectures, teachers felt that some review and research would assist the students in the formation of meaningful questions.

c. Those schools with larger classes divided their students into smaller groups to facilitate their participation in the formation of questions. This required some movement of the groups to other rooms which took some time from the question formulating period.

d. Due to the nature of the conference connection, it was more feasible to keep the group connected during the ten minute period than to disconnect and reconnect. The ten minute period would then be charged for even though it was of little tangible benefit to the schools.

2. The participating schools did not feel that the twenty minute question period provided sufficient time to make this part of the presentation as valuable as it could be. Since each school had only enough time to ask one question, interest in some schools tended to lag at the end of the presentation.

3. In order to permit each school to ask one question, the time limit

for the phono-lesson was exceeded causing scheduling difficulties in some of the schools in the period following the presentation.

Plan two was attempted for lecture two. This plan worked well and was much favored by all the participating schools. It was favored for the following reasons:

1. The quality of the questions improved greatly when the students were not under pressure to produce.
2. Some research and review was possible at the end of the period on the day of the lecture and an assignment could be given for the following day.
3. The participating teachers had more time to audit the questions of the students and to select the best ones to ask the professor.
4. A longer question period was possible. In the second presentation, a total of fifteen questions were asked in a thirty-five minute period. Some of the participating teachers felt that lengthening the question period would be of benefit.

Plans three and four were not attempted during this experiment because of the success realized with plan two.

No attempt was made to select the students who would participate in the lectures. The classes were made up of typical high school students with typical ranges of ability. The schools participating selected their American History classes to attend the lectures since each school offered this course. In order to apprise the participating professors of the types of texts used and the location of their students in the text, the schools sent a copy of their text to Gunnison.

At the meeting in Gunnison, the lecture topics were selected and the rticipating professors named. The lecture topics, professors and dates were as follows:

"The Roaring 20's" by William Edmondson on April 25
"The Depression Decade" by Duane Vandenbusche on May 2
"Hot War - Cold War" by Daniel Day on May 9

All of the lectures were scheduled for 11 a.m. Each participating teacher was encouraged to use visual aids before, during and after each lecture. The preparation of coordinated visuals for each school was not possible due to the lack of time.

The professors were informed of the makeup of the various classes and how the material presented in the lectures would be used for motivational purposes. Each school was furnished an 11" x 14" picture of each of the professors for display during the lecture.

Lectures one and two dealt with social history. These presentations were very colorful and were well received by the students, teachers and observers. Lecture three was more academic in nature and the interest span of some of the students was stretched beyond their capacity. Since the third lecture was more typical of a college lecture, these conclusions can be made for a lecture of this type:

1. Lectures to a typical high school class cannot be too "high powered" if all the group is to be attentive and benefit from the material being presented.
2. A lecture of over thirty minutes duration to a high school class will require a special approach if the students are to remain attentive during the entire presentation. This special approach might include some form of visual aid to be shown in conjunction with the lecture.

As a result of the three lectures and from information gathered from a series of surveys, the following general conclusions can be drawn:

1. The lecturer should experiment with the telephone equipment to

be used in order to familiarize himself with its operation and its limitations. A typical problem that might occur is the trailing off of the lecturer's voice at the end of a sentence. If this happens, it is extremely difficult to follow the lecture.

2. The interest level remains high if the lecturer includes humor and pathos.
3. The academic lecture has apparently limited potential for the typical high school class.
4. Sufficient time should be allowed for the formulation of questions.
5. The telephone has one great advantage over other communications media such as educational television, tape recordings and radio because it permits two way communication.
6. The participating teachers generally agreed that in this experiment, Lecture One did provide a motivational stimulus to the students. Technical problems in Lecture Two prevented a clear-cut decision as to how much motivation was generated. In Lecture Three, because of the nature of the lecture, it was generally agreed that only the brighter students were motivated.
7. Students enjoy this means of communication and most feel that it is of benefit to them in their studies.
8. There was some question on the part of several of the participating teachers as to whether the value of the lectures was outweighed by problems created in rescheduling classes. If schools participating in a series of lectures could coordinate their schedules in advance, the problem would not occur.
9. Parents were favorable to the use of the telephone as a teaching device and most indicated they would be interested in attending a demonstration of the telephones use.

The Equipment Used

Several types of equipment were used by the schools in this experiment. This equipment included the 3-A speaker phone, the 3-A speaker phone modified with a #106 speaker, a tandem connection of several 3-A speaker phones connected together by means of a specially developed switching console.[6] The 3-A speaker phone consists of a microphone and an amplifying speaker. Use of the speaker phone eliminates the need for using the usual hand set. The 3-A equipment has been in use for some time by business where the convenience of the microphone and speaker have been proven. In adapting this equipment for use in the classroom, the following should be considered when using the 3-A speaker:

1. The range of the 3-A speaker is limited and the quality of the reproduction diminishes as the number of listeners increases. From our experiments, 20-30 listeners under ideal conditions is the maximum number if only one speaker is used. The number of listeners per speaker is directly related to number two below.
2. The size of the room limits the effective range of the speaker. Generally speaking, the smaller the room, the better the reception. If the size of the room increases beyond 400 square feet the quality of the reception decreases proportionally.[7]
3. The 3-A speaker does not appear to transmit treble tones well. A great deal of difficulty was experienced by all the schools in the transmission of girls' voices.
4. When the microphone is being used, the speaker does not operate. This requires that only one person talk at a time.

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[6] This equipment was specially developed for the Western States Small Schools Project by the Mountain States Telephone Company

[7] Reception was good to poor in a room of 900 square feet with a small group participating

The following should be considered when using the microphone attached to the 3-A speaker:

1. The person using the speaker phone should be within three feet of the mircophone if the best voice reproduction is to be had. The microphone is directional and the person speaking should be directly in front of it.
2. The microphone has the tendency to clip off the first syllable of a word spoken after a long pause.
3. Treble tones are not effectively reproduced.
4. The off-button is sensitive and care must be exercised if the microphone is moved during a presentation to avoid the possibility of being disconnected.

In all schools where a telephone technician was present during the presentation, it was unanimously reported that the assistance rendered materially improved the presentation. In some areas, particularly in Silverton, and to a lesser extent, Meeker, transmission problems presented during the series of calls make the use of the telephone in the schools of questionable value at this time. In cases where line noise was present to a disturbing extent, it was found that by reversing the connecting procedure whereby the school originated the call rather than the conference operator, an improvement in transmission quality was often possible. This improvement came in areas that were not on the dial system where the local operators had some flexibility in selecting the best long distance line that was available to them. Since most telephones today are on the dial system and the likelihood is that all will be in the near future, this selectivity of the local offices will be eliminated.

In the first lecture, there were only minor technical difficulties with the conference connection. The difficulties that did arise were due to a lack of familiarity with the equipment and its operation. Two schools were disconnected at the end of the presentation of the lecture due to the fact that they did not realize that the conference circuit was to be maintained during the ten minute question formulating period. The schools reported that the reception ranged from good to excellent for the entire presentation. Some difficulty arose during the question period when students asking questions had some difficulty in making their questions heard by the lecturer. These difficulties were caused by the following factors:

1. The person speaking was too far from the microphone.
2. A poor quality of speaking voice due to inexperience or "stage fright."
3. High pitched voices did not transmit well and were difficult to understand.

Some difficulty was experienced during the lecture at times when the professor's voice trailed off at the end of a sentence.

In Lecture Two, the procedure was changed substantially as already mentioned. Unusual and unexplainable technical difficulties arose during the lecture portion of this presentation. For reasons beyond the control of the Telephone Company, several of the schools experienced great difficulties. One school was disconnected three times and missed most of the lecture. A severe windstorm had occurred during the period of this presentation and the Telephone Company had unusual technical difficulties which they were unaware of until the lecture was over.

In Telluride, the reception was excellent. The only difficulty that arose came about when a student accidently disconnected the phone and several minutes were required to be reconnected by the conference operator. The question period on the following day proceeded excellently.

The only difficulties that arose came about when students experienced the same problems in using the equipment that have been previously mentioned.

The third experiment proceeded without any difficulties. The reception was reported to be good to excellent and all the participating schools were favorably impressed with the operation of the equipment. Silverton reported some line noise but not enough to interfere with the presentation.

Other Experiments Using the Telephone

The fourth experiment conducted did not involve students. In this experiment, all of the participating schools were connected in a conference circuit to Western State College in Gunnison. The purpose of this call was to demonstrate the possibilities of using the telephone for a joint faculty meeting. No difficulties were experienced in this call. The participating schools were given the opportunity to give their impressions of the use that the telephone equipment had been put to in their schools. All of the schools expressed confidence in the future of this means of communication and each expressed an interest in pursuing the use of the telephone during the next school year.

At Telluride, two additional experiments using the special equipment were conducted. These two experiments did not require a conference circuit. The first of these experiments had as its purpose, the demonstration of a class being taught in two remote schools simultaneously.[4] In this experiment, students in a high school class in Rangely and in Telluride conducted a poetry program.

As a result of this experiment, the following should be considered:

1. Poetry is probably one of the most difficult areas to attempt by telephone. The difficulty arises because of the abstract nature of a poem. If the listener misses a key word or idea in a poem, the entire poem may be meaningless. In this experiment, the inexperience of the group using the equipment caused some of the problems which made parts of the presentation of questionable value. Those portions of the program that were handled by the participating teachers were excellent. There is no question

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[4] This method is currently under study at Colorado University and the University of Omaha on the college level

that this method of using the telephone has many possibilities for the schools. The groups using the equipment should have some experience before a program is planned.

2. Where only one microphone is available to twelve or more students, if each student is to participate in a presentation, some difficulty occurs in the organization of the presentation. The problem that causes the most difficulty is in getting the students to and from the microphone. If some care is not taken the presentation may lag and an undue amount of noise may be created. In Telluride, where only one microphone was in use, the students were lined up in front of the microphone which was placed about five feet from the floor. This permitted the students to stand in front of the microphone and to leave quickly and quietly when they were finished with their part of the presentation. In Rangely, where multiple microphones were in use, this problem did not occur. Some difficulty did occur at Rangely when the switching from one microphone to the next did not proceed smoothly.

The second experiment in Telluride tested the idea of showing a series of color slides to a class with the lecturer describing the slides from a remote location using the telephone.[5]

This experiment was conducted on an elementary school level with 45 students from Grades 3, 4 and 5 participating. In the first portion of the presentation, a slide was shown and described by the lecturer. A question period followed immediately with the students asking the question of a moderator who relayed the question to the lecturer. It was found that this arrangement did not work satisfactorily due to the fact

[5] The lecturer described his slides from his home in Telluride. This presentation could just as well have originated from a location many miles away.

that each child wanted to ask a question after each slide and this caused considerable confusion.

A second method was tried which worked well. During the second part of the presentation, all the slides were shown in order with the lecturer describing them as we went along. At the end of the slides, each child was given the opportunity of asking one question.

The students, their teachers and the authors were most enthusiastic over this experiment. There is no doubt that this method of using the telephone can find a wide application for all grades and in most subject areas.

Other schools used the telephone in different experimental ways. No description of these experiments is available at this time.

Summary

The use of the telephone in this series of presentations indicates that a sharing of information on a multi-school basis can be motivating to the students who participate. While this media does open new possibilities for two-way communication, the actual amount of two-way communication was somewhat limited. For the purposes of this project, the original plan to connect several schools to a central point was closely followed and this arrangement worked well.

It is felt that true two-way communication did not exist since there was little provision for spontaneity on the part of the students. The professors did react spontaneously to the questions of the students and this part of each presentation was most impressive to the participating teachers and administrators. It would appear then, that the telephone has many possibilities for true two-way communication that this project did not adequately test.

Since the participating students shared a common experience, some consideration might be given to methods that might implement this commonality in other ways. Perhaps the sharing of reference or enriching materials recommended by the professor would also motivate the students. The exchanging of classes several times during the school year whereby contiguous schools would share classroom experiences might be considered.

There is a great need, especially in the small high school, to expose the bright students of one high school to bright students in other schools. Using a common experience created through the use of the telephone, schools interested in providing their students with unique experiences might consider ways to capitalize on the motivational possibilities which seem, at this point, to be limitless.

It is felt that additional experimentation is required before schools in general will adopt the usage of the telephone as a teaching device. This is because of the fact that the equipment currently available is still in the developmental stage and in its present state is somewhat limited in its usability.

It would appear then, that the continued cooperation of the schools with the telephone company evinced in this project will certainly overcome problems that are now evident. It is anticipated that this project is the first of many projects that will ultimately demonstrate the feasibility of using the long distance telephone as a teaching device.

Addendum I

Financial assistance from the Western States Small Schools Project:

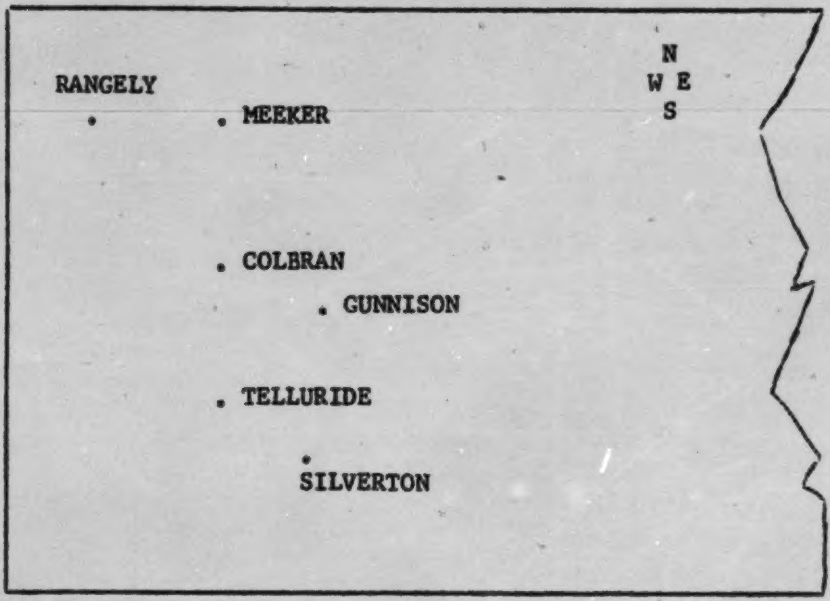
1. Principal investigator for documentation	$300.00
2. Multiplication of visuals	50.00
3. Travel for teachers	200.00
4. Photography	75.00
Total Budgeted	$625.00

Financial and technical assistance furnished by the Mountain States Telephone and Telegraph Company:

1. Technical coordination
2. Special equipment for six locations
3. Toll charge payments for a maximum of five hours of six terminal net

Addendum II

Map of location of participating schools with chart of mileage to Gunnison



Airline miles to Gunnison	
Rangely	145
Meeker	117
Colbran	72
Telluride	61
Silverton	61
Total	456

Road miles to Gunnison	
Rangely	265
Meeker	245
Colbran	168
Telluride	130
Silverton	124
Total	912

It is interesting to note that a lecturer would have to drive over 1800 miles to visit each individual school

Addendum III

Names of participating teachers and administrators

Rangely High School

William Shanahan, Participating Teacher

Robert Wallendorf, Principal

Meeker High School

Richard Castle, Participating Teacher

Robert King, Superintendent of Schools

Plateau Valley High School, Colbran

James Rowbotham, Participating Teacher

C. L. Kinney, Superintendent of Schools

Silverton High School

Norman Higgs, Participating Teacher

Henry McMillan, Superintendent of Schools

Telluride High School

Thomas Beattie, Participating Teacher

Paul Frick, Superintendent of Schools

Coordinator for the Mountain States Telephone Company

Neil Ahearn

Coordinators for Western States Small Schools Project

Frank Anderson

Paul Nachtigal

WESTERN STATES SMALL SCHOOLS PROJECT
TELEPHONE LECTURE QUESTIONNAIRE

Date________________Your School______________________Your Grade_________

1. Were you able to hear all of the professor's lecture clearly? Yes No

   If your answer is No, circle the reason(s): Not enough volume, too much static or interference, too much noise in the room, too much noise outside the room, other reasons______________

2. Could you hear the other schools clearly? Yes No

   If your answer is No, circle the school(s) you could not hear: Silverton, Rangely, Meeker, Colbran, Telluride. Did this condition occur during all or part of the presentation? All Part

3. Circle the type of room in which you heard the lecture: Library, classroom, auditorium, other_____________________________

4. Do you think that this room was adequate for the equipment used? Yes No

5. Approximately how many were present in your room?____________

   Do you think there were too many present? Yes No

6. How would you evaluate the presentation? (Circle)

   Excellent, Good, Fair, Poor

7. This program was divided into three portions: First portion, the lecture (30 min.) middle portion, the question formulating (10 min.), last portion, the discussion portion (20 min.). Check the appropriate answers below:

   The first portion was too long_____, Just right_____, Too short_____
   The middle portion was too long____, Just right_____, Too short_____
   The last portion was too long______, Just right_____, Too short_____

8. Would the use of the telephone as demonstrated add to your interest in school subjects if used in your school? Yes No

9. Would the use of the telephone to bring specialists to your classroom aid you in understanding school subjects? Yes No

For other comments use back side

Please circle the appropriate answer:

1. TWO METHODS OF USING THE TELEPHONE WERE ATTEMPTED. THE FIRST METHOD INCLUDED THE LECTURE, QUESTION FORMULATING PERIOD, AND THE QUESTION PERIOD INCLUDED IN A ONE HOUR PERIOD. THE SECOND METHOD USED THE LECTURE ON ONE DAY AND THE QUESTION PERIOD ON THE FOLLOWING DAY. WHICH METHOD DID YOU PREFER? FIRST SECOND

2. WHICH METHOD DID THE STUDENTS PREFER?

3. DID THE SECOND METHOD CAUSE YOU ENOUGH PROBLEMS IN SCHEDULING CLASSES TO MAKE YOU QUESTION THE WORTH OF A SERIES OF PROGRAMS NEXT YEAR? YES NO

4. TWO APPROACHES WERE MADE TO THE LECTURE. THE FIRST AND SECOND LECTURES DEALT WITH SOCIAL HISTORY AND WERE DESIGNED TO STIMULATE THE INTEREST OF THE STUDENTS. THE THIRD LECTURE WAS MORE FACTUAL AND WENT MUCH MORE DEEPLY INTO THE SUBJECT AREA. WHICH TYPE DO YOU PREFER? FIRST SECOND

5. WHICH DID THE STUDENTS PREFER? FIRST SECOND

6. APPROXIMATELY THIRTY MINUTES WERE ALLOTTED TO THE LECTURE. WAS THIS ABOUT THE RIGHT AMOUNT OF TIME_____(YES OR NO) IF NO, THE AMOUNT OF TIME YOU WOULD SUGGEST______________

7. APPROXIMATELY THIRTY MINUTES WERE ALLOTTED FOR THE QUESTION PERIOD. WAS THIS ABOUT THE RIGHT AMOUNT OF TIME_______(YES OR NO) IF NO, WHAT WOULD YOU RECOMMEND?___________________

8. AT OUR MEETING IN GUNNISON, WE DISCUSSED THE POSSIBILITY OF A SERIES OF TEN LECTURES NEXT YEAR. FIVE IN THE SOCIAL STUDIES AND FIVE IN OTHER AREAS. BASED ON THE RESULTS OF THIS PILOT PROGRAM, ARE YOU AND YOUR SCHOOL STILL INTERESTED IN PARTICIPATING IN SUCH A PROGRAM? YES NO

9. DO YOU FEEL THAT THE EQUIPMENT USED FOR THE LAST LECTURE WAS ADEQUATE FOR YOUR SITUATION? YES NO

10. IF YOUR ANSWER IS NO TO THE ABOVE QUESTION, GIVE REASONS ON BACK.

11. WHAT DO YOU ANTICIPATE WOULD BE YOUR GREATEST PROBLEM IN NEXT YEAR'S USE OF THE TELEPHONE?_________________________________
    ____
    ____

12. DID THE PRESENCE OF A TELEPHONE COMPANY REPRESENTATIVE ASSIST YOU DURING THE PILOT PROGRAM? YES NO

13. THE TELEPHONE COMPANY WOULD LIKE SOME KIND OF A COMMITMENT FROM THE PARTICIPATING SCHOOLS FOR NEXT YEAR. INDICATE THE DOLLAR AMOUNT YOU FEEL YOUR BOARD WOULD BUDGET FOR LONG DISTANCE CALLS NEXT YEAR. $________

14. DID THE SIZE OF YOUR GROUP REMAIN THE SAME FOR ALL LECTURES? YES NO
IF NO, DESCRIBE ON BACK

15. APPROXIMATELY HOW MANY VISITORS DID YOU HAVE? INCLUDE FACULTY BUT DO NOT INCLUDE STUDENTS FROM OTHER CLASSES (ALL THREE LECTURES) ____________

16. DO YOU FEEL THAT YOU USED THE BEST ROOM YOU HAD AVAILABLE? YES NO
IF NO, HOW WOULD YOU IMPROVE NEXT YEAR? ANSWER ON BACK

DEAR PARENTS:

DURING THE PAST MONTH, THE HIGH SCHOOL HAS BEEN PARTICIPATING IN A SERIES OF EXPERIMENTS USING THE LONG DISTANCE TELEPHONE. THESE EXPERIMENTS HAVE BEEN CONDUCTED WITH THE COOPERATION OF THE MOUNTAIN STATES TELEPHONE COMPANY, THE WESTERN STATES SMALL SCHOOLS PROJECT AND WESTERN STATE COLLEGE. THE PURPOSE OF THESE EXPERIMENTS HAS BEEN TO BRING TO OUR SCHOOL THE IDEAS OF EXPERT COLLEGE PROFESSORS BY MEANS OF SPECIAL LONG DISTANCE EQUIPMENT. AS PARENTS OF STUDENTS WHO HAVE BEEN PARTICIPATING IN THIS PROJECT, WE WOULD LIKE YOU TO COMPLETE THE FOLLOWING QUESTIONNAIRE. (PLEASE CIRCLE THE APPROPRIATE ANSWER.)

1. HAS YOUR CHILD INFORMED YOU FOR THE TELEPHONE EXPERIMENTS? YES NO
2. SINCE OUR SCHOOL IS SOMEWHAT ISOLATED, DO YOU APPROVE OF THE SCHOOL'S ATTEMPT TO PROVIDE OUR CHILDREN WITH NEW IDEAS FROM OUTSIDE THE COMMUNITY? YES NO
3. DOES YOUR CHILD THINK THAT THE TELEPHONE EXPERIMENTS WERE OF BENEFIT TO HIM IN HIS STUDIES? YES NO
4. WOULD YOU RECOMMEND THAT THE SCHOOL CONTINUE IN THE EXPERIMENTAL USE OF THE TELEPHONE TO BRING OUTSIDE SPEAKERS TO OUR COMMUNITY? YES NO
5. WOULD YOU BE INTERESTED IN OBSERVING A DEMONSTRATION OF THE TELEPHONE EXPERIMENT AT SOME TIME IN THE FUTURE? YES NO

COLORADO WESTERN STATES SMALL SCHOOLS PROJECT

DOCUMENTATION

TELLURIDE NONGRADED SCHOOL
Paul Frick
Telluride Elementary School

COLO. STATE DEPT. OF
EDUCATION · DENVER
BYRON W. HANSFORD
COMMISSIONER

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TELLURIDE NONGRADED ELEMENTARY SCHOOL

Steps Leading to the Establishment of the Nongraded School.

It became apparent early in the 1959-1960 school year that the elementary school teachers were dissatisfied with certain aspects of the school program. Following is a list of their criticisms:

1. Promotion and retention - Some children at the end of a school year have not completed up to 25% or even 50% of that year's material. Is it in the child's best interests either to retain or promote him? The teachers felt that in each subject he should begin in the fall where he had ended in the spring. Our graded school prevented this from happening.

2. Acceleration - Children who have finished the year's material before the end of school were given "enrichment" or assisted slower students. Why should the gifted child be forced to "tread water" when he was ready to move into next year's subject matter? But what would next year's teacher use if the child used that same material toward the end of the proceeding year? The rigid graded structure of our school ruled out the flexibility necessary to meet the needs of the more rapid learners.

3. Individualization - Even though the pupils were arranged into two or three groups during reading and arithmetic and some individualized instruction took place during art and penmanship, it was thought that individualization of instruction was insufficiently emphasized. The faculty felt that changes in school goals and instructional methods were necessary.

4. Reporting - There was teacher dissatisfaction in the use of

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letter grades on report cards because of the competition among pupils for high grades. The primary teachers in particular wanted to grade the children against themselves rather than against each other. It was felt that the grading system pulled the students toward the group approach rather than the individual approach to learning.

We thought that the nongraded school might be the answer to these problems. A day-long visit was arranged in the spring of 1960 to two nongraded elementary schools in Grand Junction, Colorado. Dr. Fred Jaquette, Director of Curriculum, explained the concept of nongrading and Mrs. Jo Shaeffer, Principal of Pear Park School, and Mr. John Crosby, Principal of Columbus School, showed us how their schools operated. Booklets explaining the Grand Junction plan of nongraded elementary schools were obtained. The faculty was favorably impressed by the day's visit and desired to learn more about nongrading.

During the remainder of the 1959-1960 school year and the first half of the 1960-1961 school year we endeavored to learn more about nongrading tried in other schools. Other information obtained:

1. Goodlad and Anderson's The Nongraded Elementary School.

2. Materials from the Appleton, Wisconsin, schools. During many faculty discussions we tried to determine what "brand" of nongrading best suited our situation.

In the fall of 1960 the faculty visited the nearby Norwood Elementary School, which had begun operation on a nongraded basis that fall. While no written information was available, much knowledge was gained by observing their nongraded primary school.

In December 1960 in answer to a letter requesting assistance, Mrs. Lucile Latting, Elementary Education Consultant of the Colorado State Department of Education, wrote us listing nongraded schools located in the state and other sources of information. One of the schools that she mentioned was the Manaugh Elementary School in Cortez, Colorado.

On April 19, 1961, Mrs. Violet Garrison, Principal of the Manaugh School, and Mrs. Burnelle Horton, Manaugh teacher, came to Telluride and observed the school in operation. They met with the grade school faculty and spoke to a large evening PTA meeting. (A sheet comparing the graded with the nongraded elementary school was given to everyone attending the PTA meeting. A copy is included in the appendix.) These meetings were successful and plans were begun to nongrade our school in the fall of 1961.

At faculty meetings in the spring of 1961 we made rough drafts of reading and arithmetic levels and a new report card based largely on materials given us by Mrs. Garrison.

On May 5, 1961, the entire grade school faculty went to Cortez to observe the Manaugh School in session. Mrs. Garrison and the faculty greatly assisted us in helping crystallize the details for our school. Since our school was much smaller than the Manaugh School, we had to adapt their suggestions to our situation.

During the remainder of May and in June and July the details of our variety of nongrading were worked out. (A copy of the reading and arithmetic level synopsis and a report card for the primary and intermediate schools is included in the appendix.)

The Telluride Elementary School, including grades K-6, was formally designated a nongraded school on August 29, 1961. It consisted of a kindergarten, a three year primary school and a three year intermediate school.

The First Year of Nongrading: 1961 - 1962

The transition from the graded to the nongraded structure went smoothly. At the end of the 1960-1961 school year the first and sixth grade teacher resigned. The first grade replacement arrived in time to attend several of the summer planning sessions. Although it was the end of August before a sixth grade teacher was hired, there was no problem of transition.

The close, informal contact among the teachers assisted the transition. In May each teacher had given the teacher of the next grade a complete analysis of her pupils.

In September 1961 the children were given three or four weeks of review in reading and arithmetic. This was done for two reasons:

1. To counteract the usual loss of skills that takes place during the summer.

2. To give the teachers ample time to determine each child's arithmetic and reading level placement.

Three reading textbook series were purchased for these reasons:

1. There would be uniformity throughout our grade school reading program.

2. There would be readers of varying difficulty available for each year.

The three series were the Ginn (for the slower pupils), Scott-Foresman (for the average pupils), and Houghton-Mifflin (for the faster pupils). Thus, when a child reached, for example, level 7, the teacher could place him in a group using the reader most appropriate for his ability. If this pupil were placed in the Ginn reader (slower), when he finished it the teacher could move him into a group on level 8 or into the level 7 group using either the Scott-Foresman (average) or

Houghton-Mifflin reader (faster).

(A list of the arithmetic skills by levels is included in the appendix.)

No arithmetic texts were used in the primary school. The teachers used workbooks and dittoed material. In the intermediate school the Winston arithmetic series (1956) was used.

Depending upon the class, the pupils on a given arithmetic level were divided into one, two or three groups. Grouping was done on the basis of achievement.

Report cards were issued at the end of each quarter, the first and third at a parent-teacher interview at school. Letter grades were not used. The children were graded against themselves in terms of strong progress, normal progress and insufficient progress.

Two first year pupils were retained during the 1961-1962 school year. These were students who were still immature and whose academic achievement was low. Everyone else moved into the next year's room even though some had not completed all of the preceeding year's work in some subjects. During the review period in September the teachers arrived at an appropriate reading and arithmetic level placement for every child. In some cases they were placed in levels of the preceeding year and materials were borrowed from the child's former teacher.

As the year progressed, the children moved along with their groups, most of them covering what would be a normal year's program. The slower pupils either worked individually or formed small groups as did the faster ones. Several fifth year boys who were achieving on the third year level moved to the third year for spelling. (For spelling in both primary and intermediate rooms we used "Steps to Mastery of Words" by Educational Service, Inc. of Benton Harbor, Michigan.)

One very bright fifth year girl who was too mature for her classmates was moved into the sixth year for all her subjects. Other fast pupils were given enrichment in their rooms.

Emphasis was placed upon competing against one's self and moving along through the reading and arithmetic at one's own rate of speed.

The other subject areas were taught to the class as a whole. These subjects were individualized only in the teacher's expecting less of the less able and more from the more able.

The year's testing program consisted of giving the Lorge-Thorndike intelligence test, both verbal and non-verbal forms, to all third and sixth year pupils in the fall. In May, partial batteries of the Stanford Achievement tests were given to all the pupils.

Principal Violet Garrison and Mrs. Jeanne Cox, Manaugh school teacher, visited the school at our request on May 4, 1962. They felt that we had made a successful beginning in establishing nongrading throughout our six year grade school.

The annual WSSSP Workshop, held at Colorado State College in Greeley, Colorado, in June 1962, was attended by the following teachers:

Mrs. LaVerle Dunn, kindergarten; Mrs. Moylene Davis, 2nd year; Mrs. Prudence Scott, 3rd year; Mrs. Mary Stout, 4th year; Mrs. Bertha Albin, 5th year; and Mr. Paul Frick, superintendent. The teachers and superintendent presented a program explaining the nongraded school. We also met Dr. John Goodlad and obtained some useful ideas from him.

Conclusions: 1961-1962

The first year of nongrading went smoothly for the following reasons:

1. The administration and faculty were 100% in favor of the change.
2. The Board of Education favored it.
3. The community approved it.
4. Two years of preparation preceeded the change.
5. The change was not too radical. It was felt that each year new modifications would be made so that the change from graded to nongraded structure would be gradual.

A few conclusions drawn after the first year were as follows:

1. Reading and arithmetic levels. The reading and arithmetic levels should be abandoned since they were as rigid a structure as the former grades. The curriculum would be more flexible without the levels. The texts and tests that accompanied the readers would adequately serve as curriculum guidelines.
2. Overlapping. Overlap several year's materials in each room rather than send pupils back or ahead to other rooms. Remedial and enrichment materials could be borrowed from the appropriate teacher.
3. Report cards. Improve the report cards by changing the T-E-S code. The teachers thought that this code did not convey the desired information. Several teachers suggested doing away with report cards altogether.
4. Parent-teacher conferences. The parent-teacher conferences, held at the end of the first and third marking periods, were highly satisfactory and should be continued.
5. Instructional materials room. An instructional materials room should be created and adequately supplied.
6. Reading texts. The three reading series were satisfactory.

7. Modern math. The Winston series should be replaced with a modern math series available for both the primary and intermediate schools.

8. Pupils' reaction to nongrading. The pupils accepted the nongrading because there were few radical changes. They remained with their peers, the same as under the graded plan, since there was only one room for each year's pupils. They were familiar with grouping since it had been practiced for a number of years. They missed the letter grades on exercises, tests and report cards and couldn't resist comparing the T's, E's and S's with each other. The three fifth year boys, who went to the third year room for spelling, were self-conscious and didn't like going there.

9. Individualization of instruction. Teaching for individual differences was emphasized.

10. Intelligence and achievement tests. The Lorge-Thorndike intelligence test should be given during the fall of the third and fifth years rather than the third and sixth. This change would enable the fifth year teacher to benefit by two tests instead of only one. The Standord tests should be administered in April instead of May to avoid the end-of-year confusion. A reading readiness test should be given in the fall to all first year pupils.

The Second Year of Nongrading: 1962-63

The entire grade school faculty returned which enabled a smooth entry into the second year of nongrading. Pupil placement was ascertained during a three to four week's review period through observation, testing and consultation with the preceeding year's teacher. One child was retained in the first year because of immaturity.

The levels were dropped although the teachers kept the reading and arithmetic synopsis sheets and the detailed arithmetic skill sheets as personal guides. Neither parents nor pupils missed the levels.

Each child was started in reading and arithmetic where he had ended in May. This required considerable use of materials from the preceeding year's room. This overlapping worked very well. One immature first year child spent mornings in the kindergarten room. No one else moved to a lower room.

In March a bright fifth year boy was moved into sixth year during arithmetic. Later in the year two more fifth year boys also moved ahead during arithmetic. In April the top first year group moved into the second year room for reading.

Numerous faculty meetings were devoted to improving the report cards. Everyone agreed that the pupils should be graded against themselves. Agreement could not be reached on the design of the card.

Parent-teacher conferences held the first and third marking periods worked well. Teachers kept files of the pupils' work and discussed them with the parents.

The instructional materials room was not ready for use until after school in June 1963. It should help during the 1963-1964 school year.

Modern math was not available in text form, so the Winston series teacher-made materials and workbooks were again used.

New texts were purchased for the entire grade school in science (Macmillan) and social studies (Follett).

Five high school girls served as pupil aids during all or a portion of the school year. They were very helpful.

Two counselors were available during the school year. Mr. Thomas Beattie, the high school history teacher, and Mrs. Prudence Scott, the third year teacher, were helpful in organizing and administering the testing program and in counseling pupils with emotional problems. Mr. Beattie was assigned two guidance periods each day. Mrs. Scott utilized released time during music, morning and afternoon recess and Spanish for her guidance work.

The testing program consisted of giving the Lorge-Thorndike intelligence test to all third and fifth year pupils and the Gates reading readiness test to all first year pupils in the fall, and the Stanford partial battery to all the children in the spring.

Conclusions: 1962-1963

The modifications put into effect in the fall of 1962 greatly strengthened the school. Nongrading appears to be successfully established. If the faculty and administration strive to improve the school each year and modify our variety of nongrading to fit our school and community, the experiment will be assured long term success.

Some conclusions and recommendations for next year:

1. Report cards. The report cards need to be improved. The T-E-S code should be replaced with another code that indicates how well the pupil is doing in relationship to his own ability.

2. Parent-teacher conferences. Parent-teacher conferences at the end of the first and third reporting periods should be continued. A conference guide sheet is needed to ensure that all the necessary information is imparted and that all problems are discussed. These conference guide sheets should be placed in the childrens' permanent records for future reference.

3. School goals. A reevaluation of school philosophy and goals needs to be made.

4. Reading skills. The basic reading skills should be evaluated and a sequence established for teaching the skills.

5. Arithmetic skills. The arithmetic skills sheet needs to be reevaluated.

6. Student aids. Student aids have been very useful in freeing teachers for the more essential parts of their jobs. This program should be continued.

7. Grouping. The arranging of pupils into small groups to assist individualization of instruction should be limited primarily to the teaching of reading and arithmetic and should be done only occasionally

in the other subject fields. Grouping during reading and arithmetic instruction should be done mainly on the basis of skill mastery and in other subjects on the basis of interest. Subjects such as science and social studies should continue to be taught as an entire group to help maintain the feeling of class unity.

8. Reading and arithmetic levels. The elimination of the levels increased the flexibility of the administrative structure. The levels were not missed and should not be reinstated.

9. Overlapping. Both overlapping and moving pupils back and ahead worked satisfactorily in most cases and should be continued.

10. Instructional materials room. This room is ready for the 1963-1964 school year and should be adequately supplied.

11. Modern math. A new text in modern math is needed and should be purchased as soon as one is available for all six years.

12. Individualization. It should be kept in mind that grouping is not complete individualization. Efforts should be made to make the instruction more individualized.

13. Guidance counselor. It was very helpful to have a grade school counselor this year. One should be available every year.

14. Permanent records. At present we are putting letter grades on each pupil's permanent record in case he transfers to another school or our experiment in nongrading is discontinued. This should be continued another year. The record forms are not designed for a nongraded school. A newly designed record is needed.

15. Kindergarten. Nearly all Telluride children attend kindergarten even though it is not compulsory to do so. Kindergarten is considered to be part of our nongraded school. Pupils who attend receive a good foundation for first year skills. It should be continued.

16. Continuous progress. This concept, which is another way of saying individualized instruction, is the basis of our school. The nongraded administrative structure greatly assists in the individualization of instruction.

17. Experimentation. The spirit of experimentation evidenced by the faculty has been largely responsible for the success of this experiment. This spirit should be fostered in the future.

18. Testing program. The types and variety of tests given were satisfactory, but the Stanford tests should be given in the fall. It was believed that they would be more helpful to the teachers if administered in September or October.

19. Programed materials. During the past two years the SRA Reading Lab has been used extensively in the fourth year room. It was recommended that appropriate SRA Labs be purchased for the fifth and sixth year rooms. It was also recommended that both primary and intermediate teachers experiment during the coming year in the use of other programed instructional materials.

20. Reevaluation of nongrading. We have continuously reevaluated our nongraded school during the two years of its existence. This process should continue with even more emphasis than in the past.

APPENDIX

TELLURIDE ELEMENTARY SCHOOL

Faculty Roster

1959 - 1960

Ruthe Stitzer (K)
Harriet Overaker (1)
Moylene Davis (2)
Prudence Scott (3)
Mary Stout (4)
Sarah Shaffer (5)
LaVerle Dunn (6)

1960 - 1961

Ruthe Stitzer (K)
Frances Blackburn (1)
Moylene Davis (2)
Prudence Scott (3)
Mary Stout (4)
Bertha Albin (5)
LaVerle Dunn (6)

1961 - 1962

LaVerle Dunn (K)
Everly Haynes (1)
Moylene Davis (2)
Prudence Scott (3)
Mary Stout (4)
Bertha Albin (5)
Ernest Hawkins (6)

1962 - 1963

LaVerle Dunn (K)
Everly Haynes (1)
Moylene Davis (2)
Prudence Scott (3)
Mary Stout (4)
Bertha Albin (5)
Ernest Hawkins (6)

COMPARING THE GRADED AND NONGRADED ELEMENTARY SCHOOL

The elementary school faculty and administration believe that our school can be greatly improved by changing it from the graded to the nongraded type. Below is a brief comparison of the main features of these two systems.

	GRADED	NONGRADED
Organization	Children are grouped into inflexible divisions (grades) which have rigid time limits for promotion	Children are grouped into flexible ever-changing divisions which allow the pupil to advance whenever he is ready.
Individual Differences	Teachers tend to consider children in groups rather than as individuals.	Absence of grade levels and placement in appropriate groups forces teachers to consider each child as an individual.
General Atmosphere	Changes to improve the school are not often made as the status quo is considered good enough.	Changes to improve the school are frequently made as new ideas and the spirit of experimentation are encouraged.
Flexibility	Grade levels encourage inflexibility of scheduling. Make the child fit the situation.	The situation is changed to fit the needs of the pupils. The schedule becomes secondary to the child and the curriculum.
Retention	Children who do not learn the subject matter of their grade level by the end of the school year are retained in the grade.	Since there are no grade levels there are no time limits and therefore no retentions. Children progress at their own rates of speed.
Promotion	Pupils are promoted at the end of the school year. Progress is a grade-to-grade situation.	There is no promotion in the graded sense. Pupils are advanced when they have learned the skills and concepts assuring their success at the next level of learning.

Remedial Work

Slow learners must be given special instruction when and if the teacher finds time.	By special grouping slow learners are given full time schedules at their level of achievement.

Acceleration

To keep fast learners from becoming bored, they must be given a special enrichment program (if and when the teacher finds time) or made to skip a grade.	Fast learners move ahead at their own rate of speed. No pupils skip a grade.

Mental Health

Pupils are forced to attempt to compete with others who are different in learning rate. Result is development of mental blocks set up thru impossible demands.	Pupils compete with other pupils who are doing the same level of work. The result is successful competition resulting in mental well being and educational growth.

EXPLANATION OF MARKS
T-Strong Progress
E-Normal Progress
S-Insufficient progress
Inc-Incomplete work

Marking Period

READING	1	2	Sem	3	4	Sem
Oral reading						
Understanding of content						
Using phonetic skills						
Mastery of new words						
LANGUAGE						
Correct oral usage						
Correct written usage						
Expression of ideas						
SPELLING						
PHONICS						
NUMBERS						
Accuracy						
Reasoning						
Understanding of concepts						
SOCIAL STUDIES						
Increasing his understanding of world						
Contribution to group activity						
MUSIC						
ART						
PENMANSHIP						
SCIENCE						
Contribution to group activity						
SPANISH						

Marking Period

PERSONALITY DEVELOPMENT	1	2	Sem	3	4	Sem
Works and plays well with others						
Practices good health habits						
Shows consideration and courtesy for others						
Obeys school rules						
Respects authority						
WORK HABITS						
Works independently						
Listens and follows directions						
Does neat and careful work						
Starts and completes work on time						
Has material ready						
EMOTIONAL HABITS						
Is happy and well adjusted						
Shows self-discipline						

LEVELS

MARKING PERIOD

	1	2	3	4
Present READING level				
Present ARITHMETIC level				

	Marking Period					
READING	1	2	Sem	3	4	Sem
Understanding of content						
Reading speed						
Mastery of new words						
Interest in library books						
ENGLISH						
Self expression Oral						
Self expression Written						
Grammar						
SPELLING						
Spelling						
Meanings						
Use of dictionary						
ARITHMETIC						
Understanding of concepts						
Contribution to group activity						
SOCIAL STUDIES						
History						
Geography						
Projects						
MUSIC						
ART						
SPANISH						
PENMANSHIP						
CURRENT EVENTS						

EXPLANATION OF MARKS
T-Strong Progress
E-Normal Progress
S-Insufficient progress
Inc-Incomplete work

	Marking Period					
PERSONALITY DEVELOPMENT	1	2	Sem	3	4	Sem
Works and plays well with others						
Practices good health habits						
Shows consideration and courtesy for others						
Obeys school rules						
Respects authority						
WORK HABITS						
Works independently						
Listens and follows directions						
Does neat and careful work						
Starts and completes work on time						
Has material ready						
EMOTIONAL HABITS						
Is happy and well adjusted						
Shows self-discipline						

LEVELS

	Marking Period			
	1	2	3	4
Present READING level				
Present ARITHMETIC level				

READING SYNOPSIS

	Corresponding Grade
Kindergarten	
Primary school	
Level 1 - Pre-readiness	1
Level 2 - Readiness	
Level 3 - Pre-primer	
Level 4 - Primer	
Level 5 - First reader	
Level 6 - Review	2
Level 7 - Second reader	
Level 8 - Advanced second reader	
Level 9 - Review	3
Level 10 - Third reader	
Level 11 - Advanced third reader	
Intermediate school	
Level 12 - Review	4
Level 13 - Fourth reader	
Level 14 - Advanced fourth reader	
Level 15 - Review	5
Level 16 - Fifth reader	
Level 17 - Advanced fifth reader	
Level 18 - Review	6
Level 19 - Sixth reader	
Level 20 - Advanced sixth reader	

ARITHMETIC SYNOPSIS

	Corresponding Grade
Kindergarten	
Primary school	
Level 1	1
Level 2	
Level 3 - Review	2
Level 4	
Level 5	
Level 6 - Review	3
Level 7	
Level 8	
Intermediate school	
Level 9 - Review	4
Level 10	
Level 11	
Level 12 - Review	5
Level 13	
Level 14	
Level 15 - Review	6
Level 16	
Level 17	

SKILLS BY LEVELS

Introduced	Developed

Kindergarten (one year)

1. Recognition of numbers 1 - 10.
2. Writing of numbers 1 - 10.

Primary (three years)

Level 1

1. Review of numbers 1 - 10 for those having had kindergarten.
2. Recognition of numbers 1 - 10.
3. Writing of numbers 1 - 10.
4. Count to 100 by 1, 2, 5 and 10.
5. Write to 100 by 1, 2, 5 and 10.

Level 2

1. Addition facts-sums to 9.
2. Subtraction facts-minuends to 9.
3. Recognition of time-hour and half hour.
4. Recognition of money-all U. S. money.
5. Using money-1¢, 5¢, 10¢.
6. Use of ruler-linear-1 inch to 12 inches.
7. Liquid measure-pint and quarts.
8. Calendar-days, weeks, year.
9. Comparison vocabulary.
10. Terms and signs - + = & -.

Level 3

1. Review.

Level 4

1. Understand, count, read, write numbers to 200 and place value of units; ones, tens, and hundreds.
2. Addition facts-sums to 12.
3. Subtraction facts-minuends to 12.
4. Recognizing and using U. S. money-1¢, 5¢, 10¢ and 25¢.
5. Recognition of fractions - ¼ and ½.
6. Measures-cup, pint, quart, inch, foot, yard (recognizing).
7. Recognition of time-hour and one-half hour.
8. Ordinal numbers-First through Fifth.
9. Problem solving-addition and subtraction.
10. Comparison vocabulary.
11. Terms and signs-and, take away, equals.

Level 5

1. Understand, count, read, write numbers to 500 and place value of units; ones, tens, and hundreds.
2. Addition facts-sums to 12.
3. Subtraction facts-minuends to 12.
4. Learn to add three addends; problem sums to 12.

	Introduced	Developed
5. Recognizing and using U. S. money-50¢ and $1.00.		
6. Recognition of fractions-¼, ½ and 1/3.		
7. Recognition of time-hour and ½ hour.		
8. Addition and subtraction of two place numbers with no borrowing and carrying.		
9. Measures-cup, pint, quart, inch, foot, yard (recognizing and using).		
10. Ordinal numbers-sixth through tenth.		
11. Problem solving-addition and subtraction.		
12. Comparisons.		
13. Terms and signs.		
Level 6		
1. Review		
Level 7		
1. Reading and writing numbers to 1000.		
2. Ordinal numbers-tenth through twentieth.		
3. Addition combinations with sums of 20.		
4. Subtraction combinations with minuends of 20.		
5. Time-minute, one-fourth hour, one-half hour, hour, week, month, calendar.		
6. Roman numerals through 10.		
7. Recognition of fractions, 1/2, 1/3, 1/4, 1/6, 1/8, 1/10 and 1/12.		
8. Recognizing and writing money to $100.00		
9. Measures and weights-inch, foot, pint, quart, pound, ounce, dozen, one-half dozen.		
10. Zero concept.		
11. Addition of 3-place numbers-no carrying.		
12. Subtraction of 3-place numbers-no borrowing.		
13. Division through twos, no remainders.		
14. Multiplication through threes.		
15. Problem solving-addition and subtraction.		
16. Comparisons.		
17. Terms.		
18. Multiply two or three place numbers by one multiplier without carrying.		
Level 8		
1. Reading and writin numbers to 1000.		
2. Ordinal numbers-through 20.		
3. Addition combinations with sums to 30.		
4. Subtraction combinations with minuends to 30.		
5. Telling time, minute, one-fourth hour, one-half hour, hour, week, month, calendar.		
6. Roman numberals through 20.		
7. Recognition of fractions-1/2, 1/3, 1/4, 1/6, 1/8, 1/10, 1/12.		
8. Recognizing and writing money to $100.00		
9. Measures and weights-inch, foot, yard, pint, quart, ounce, pound, dozen, one-half dozen.		

Introduced	Developed

10. Zero concept
11. Two-digit carrying in 3 place numbers in addition
12. Two-digit borrowing in subtraction in 3 place numbers
13. Division facts through fives, no remainders
14. Multiplication through fives
15. Multiply two or three place numbers by one number with or without carrying
16. Problem solving
17. Comparisons
18. Terms

Intermediate (three years)
Level 9 (Review)

Level 10

1. Reading, recognizing and writing numbers to 100,000
2. All basic addition facts
3. Three addends with two place numbers
4. Two addends with three place numbers
5. Ragged addends to three place numbers
6. Two-digit carrying in three place numbers in addition
7. All basic subtraction facts
8. Three-digit borrowing in subtraction in four place numbers
9. Multiplication through sevens
10. Multiply two or three place numbers by one number with or without carrying
11. Division facts through sevens, no remainders
12. Checking answers in addition, subtraction and division
13. Using zero concept
14. Roman numerals through 50
15. Recognizing and writing fractions--1/2, 1/3, 1/4, 1/6, 1/8.
16. Recognizing and writing money in all processes
17. Using measures in problem solving
18. Telling and writing time
19. Terms

Level 11

1. Reading and recognizing and writing numbers to 1,000,000
2. Four addends with two or three place numbers
3. Three addends with three place numbers
4. Ragged addends to four place numbers
5. Three digit carrying in four place numbers
6. Four digit borrowing in subtraction in five place numbers
7. Multiplication through nines
8. Multiply two or three place numbers by one number with or without carrying

	Introduced	Developed
9. Division facts through nines with remainders.		
10. Long division with one number divisors.		
11. Checking answers.		
12. Using zero concept.		
13. Roman numerals through 100.		
14. Recognizing and writing proper fractions through 7/8.		
15. Two step problems.		
16. "Average" concept.		
17. Terms.		
Level 12 (Review)		
Level 13		
1. Reading, recognizing and writing numbers to 1,000,000,000.		
2. Five or more addends with four place numbers.		
3. Ragged addends to four place numbers.		
4. Four digit carrying in five place numbers in addition.		
5. Five digit borrowing in subtracting in six place numbers.		
6. All basic multiplication facts.		
7. Multiply three place numbers by two place numbers.		
8. All basic division facts.		
9. Long division with one or two place divisors.		
10. Estimating quotients.		
11. "Average" concepts.		
12. Terms.		
Level 14		
1. Continue use of all basic facts.		
2. Meaning of proper and improper fractions.		
3. Changing to lower and higher terms.		
4. Changing improper fractions to mixed numbers and vice versa.		
5. Addition and subtraction of like fractions.		
6. Multiplying whole numbers by fractions.		
7. Multiplying fractions by whole numbers.		
8. Introduce decimal concept, tenths, hundreds.		
9. Units of measure-liquid, dry, weight, time, area, time zones.		
10. Graphs and maps.		
11. Terms.		
Level 15 (Review)		
Level 16		
1. Division of two and three place numbers.		
2. Multiplying by two and three place numbers.		
3. Adding common fractions.		
4. Subtracting common fractions.		
5. Adding decimal fractions.		

	Introduced	Developed
6. Subtracting decimal fractions.		
7. Checking answers.		
8. Estimating answers.		
9. Terms.		
Level 17		
1. Multiplying fractions by fractions and mixed numbers.		
2. Multiplying whole numbers and mixed numbers.		
3. Cancellation.		
4. Division of whole numbers and fractions and by mixed numbers.		
5. Division of fractions and mixed numbers by fractions.		
6. Division of fractions by mixed numbers.		
7. Division mixed numbers by whole numbers.		
8. Multiply in decimal fractions.		
9. Dividing decimal fractions.		
10. Understanding and using all measurements.		
11. Making and using graphs, maps, and scaled drawings.		
12. Beginning geometry concepts.		
13. Beginning algebra.		